Federal Enterprise Architecture (FEA)

Draft Service Component Reference Model (SRM)

Draft Technical Reference Model (TRM)

Agency Briefing

January 29, 2003

Federal Enterprise Architecture - Program Management Office (FEA-PMO)
Architecture and Infrastructure Committee (AIC)
Solution Architects Working Group (SAWG)

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The Federal Enterprise Architecture is a business-focused framework for cross-agency, Government-wide improvement

- **The Federal Enterprise Architecture (FEA) is providing OMB and Federal agencies with a** new way of describing, analyzing, and improving the Federal Government **and its ability to serve the citizen**
- **The FEA will** eliminate the organizational obstacles **that have historically hindered improvement** without forcing reorganization
- **The FEA is a** business-focused approach **and is not just for IT**
- **The FEA provides a** common framework **for improving a variety of key areas:**

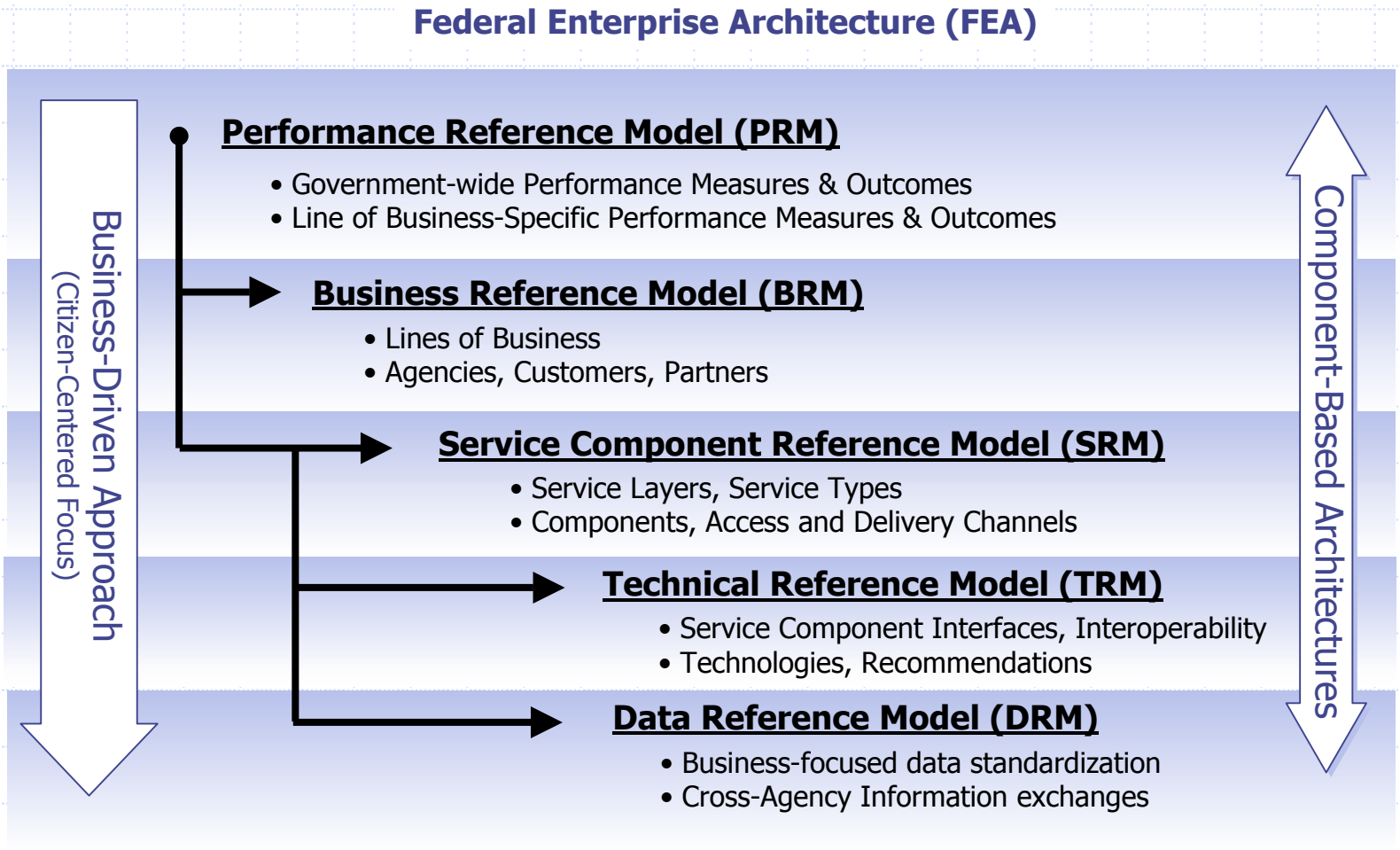
Business Line Focus:

- Budget allocation
- **Horizontal and vertical information sharing**
- Performance measurement and budget/performance integration
- Component Based Architecture

Citizen Centered:

- **Cross-agency collaboration**
- Improved service to the citizen
- **e-Government**
- Process integration
- Call center convergence
- and more

The FEA is being constructed through a collection of inter-related "reference models" designed to facilitate cross-agency collaboration, and horizontal / vertical information sharing



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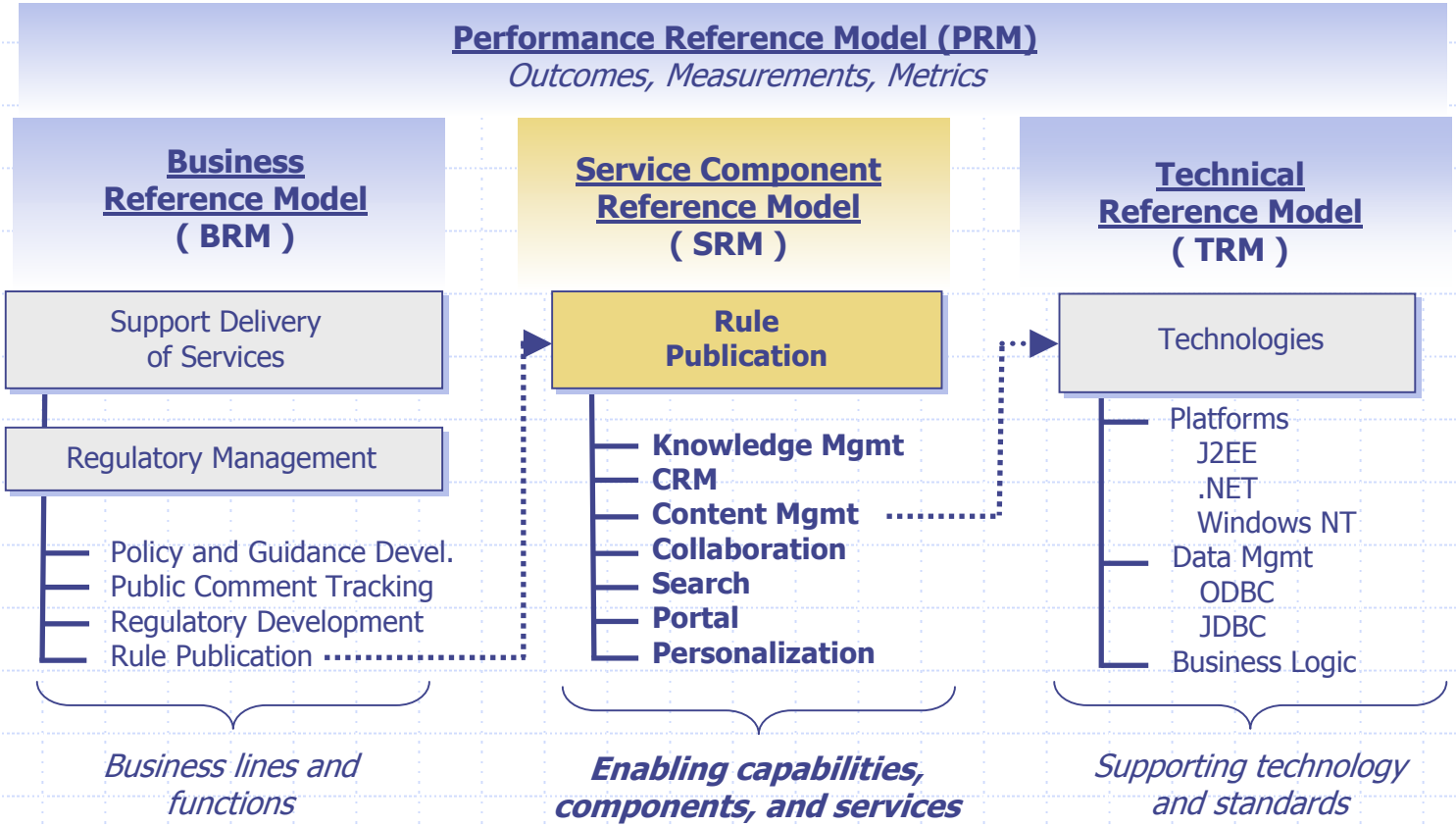
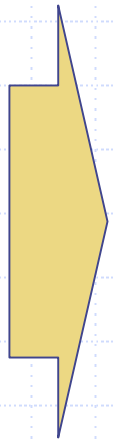
The SRM is a business-driven, functional framework that classifies capabilities (or service components) with respect to how they support the business and performance objectives



The SRM is intended to support major government-wide transformation and reform efforts

Scope of the SRM

- Office of Homeland Security (OHS)
- Presidents Management Agenda
- The 24 Presidential Priority e-Gov Initiatives
- E-Government Strategy
- The Federal Enterprise Architecture (FEA)
- FAWG – eGov Enterprise Architecture Guidance
- Statutory Requirements and Federal Policies
  - Clinger-Cohen Act of 1996



Benefits/Outcomes

- Increased Horizontal and Vertical Information Sharing
- Increased Cross-Agency Collaboration
- Aligned to Business and Performance Objectives
- Increased Shared Services and Component Reuse
- Reduction and Identification of Duplicative Investments

The FEAPMO defined several objectives to support the creation of the SRM

Objectives:

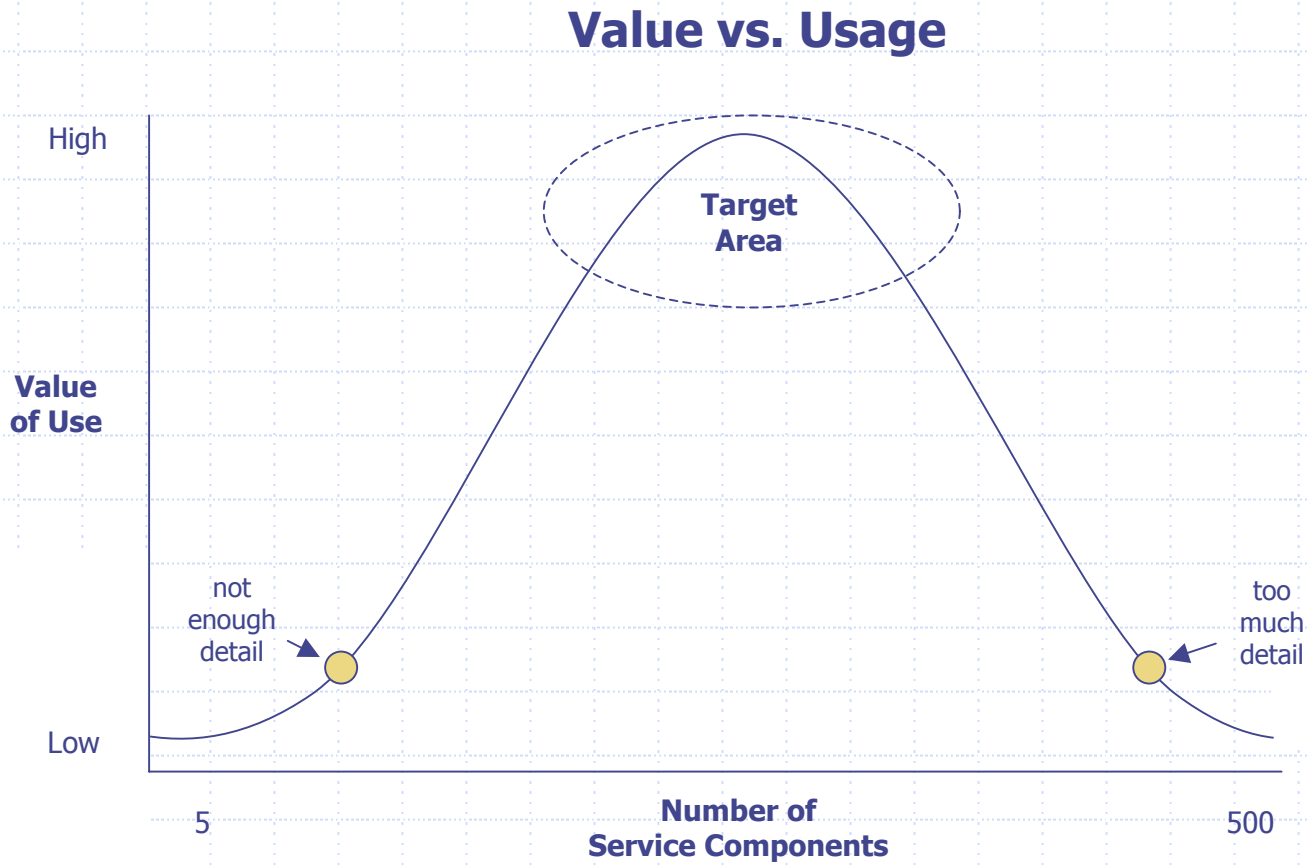
- Create a reference model that could be leveraged to identify existing services, components, and capabilities across the government
- Support the rapid assembly of business and cross-agency solutions through technology reuse
- Create a reference model that could evolve as we learn more about the capabilities of the government
- Provide agencies with a reference model that could leveraged in investment planning and initiative building
- Leverage and expand the work of others
  - Federal Government
  - Industry, State, Local, DoD
- Define the structure of the SRM
- Create a working draft of the SRM
- Capture and integrate Agency feedback – prior to release

The FEAPMO leveraged multiple government and industry resources when creating the SRM

Supporting References:

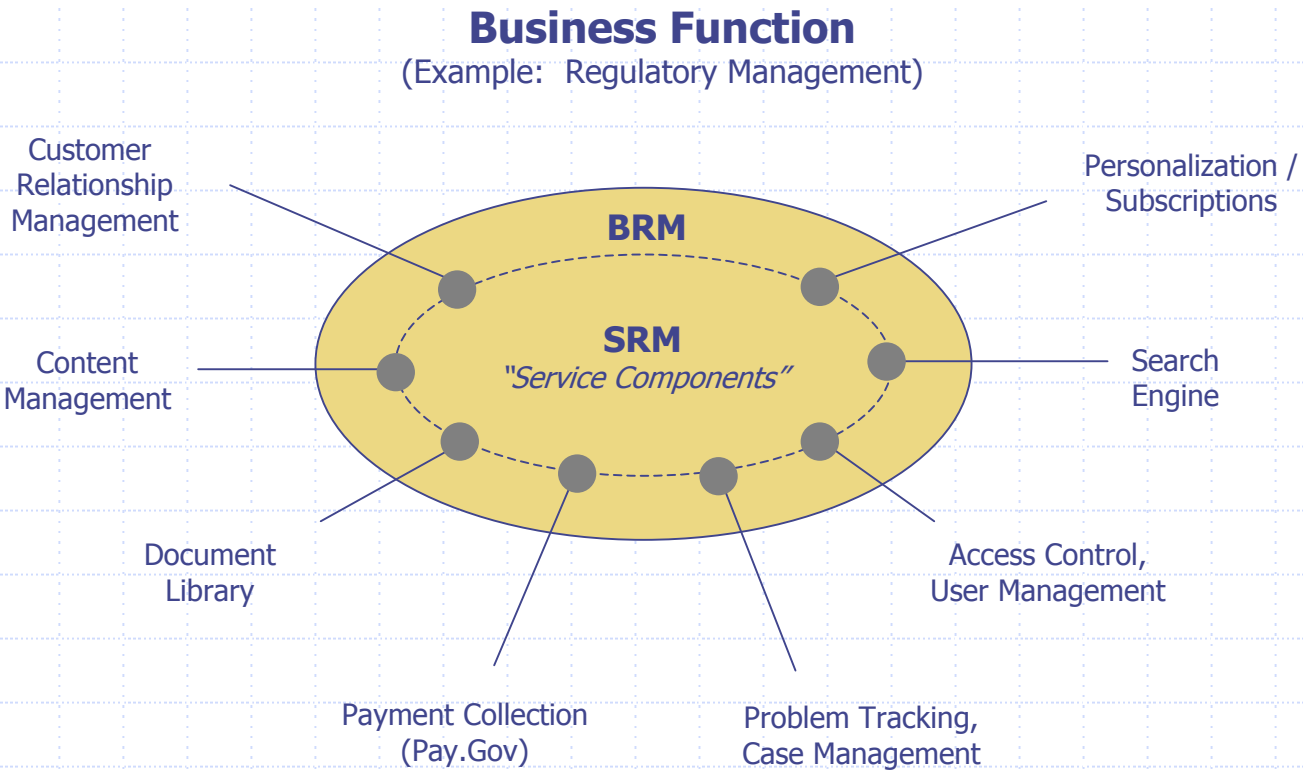
- Government
  - Application Capability and Technical Reference Models:
    - INS
    - Army Corps of Engineers
    - Department of Defense
    - Department of Energy
    - FEA Working Group – eGov Guidance
    - Environmental Protection Agency
    - FEMA
    - General Services Administration
    - Housing and Urban Development
    - Health and Human Services
    - Office of Personnel and Management
    - Small Business Administration
    - Social Security Administration
    - Department of Labor
- State, Local, Industry
  - Gartner – 2002 Software Market Definitions
  - IBM e-Business Patterns
  - TRM - State of Texas

The FEAPMO chose a "starting point" to create the SRM - focusing on a value-based usage



A Service Component is a business-driven, functional capability which assists the business in accomplishing it's mission and/or performance objectives

"Service Components are Technology and Agency Independent"



The SRM framework is comprised of three (3) inter-related "service-orientated" tiers – each of which describes capabilities in greater levels of granularity

Service Layers

The collection of business oriented service categories that align service / component capabilities to a level in which they support the objectives and performance of the business.

7 Service Layers

Service Types

A collection of business-driven, service types (or categories) that assist the Service Layer in accomplishing of mission and/or performance objectives.

27 Service Types

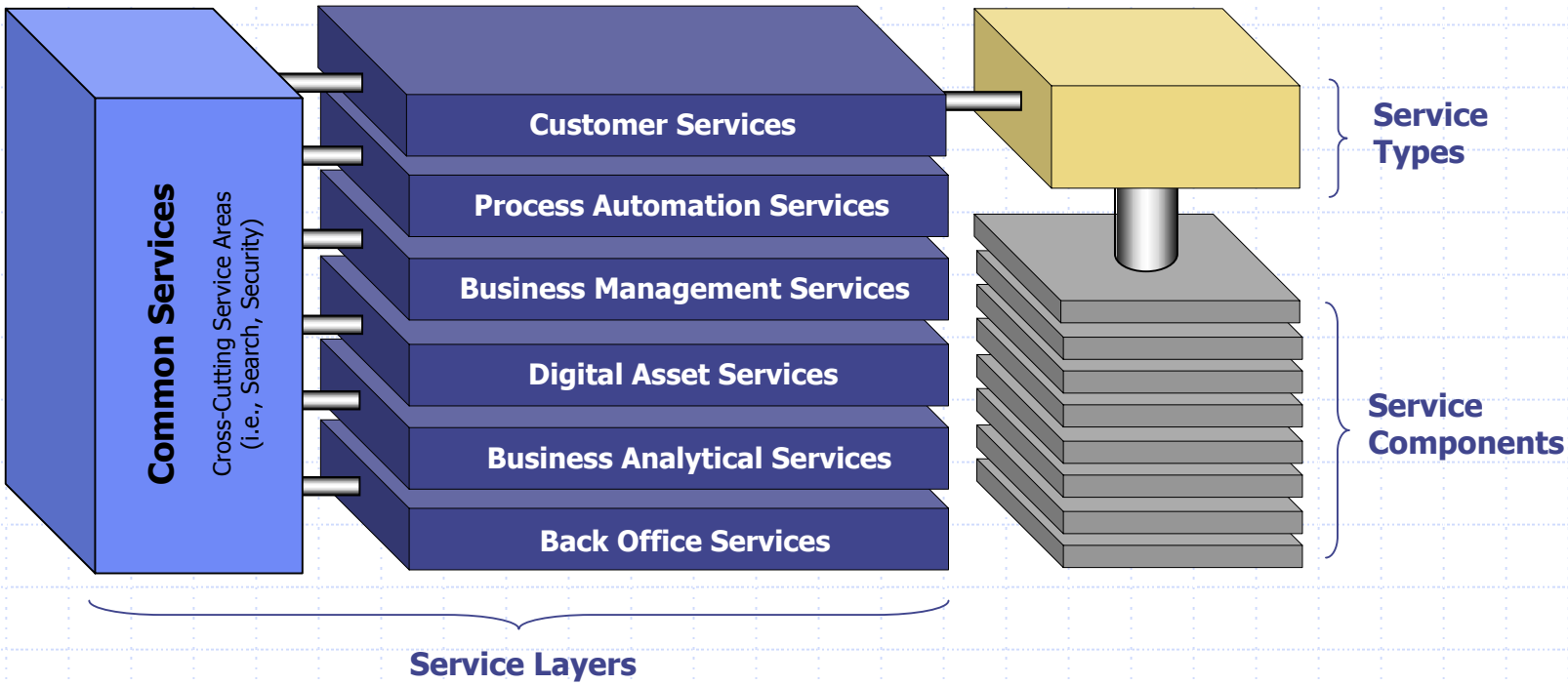
Service Components

The collection of components and/or capabilities that support the Service Type.

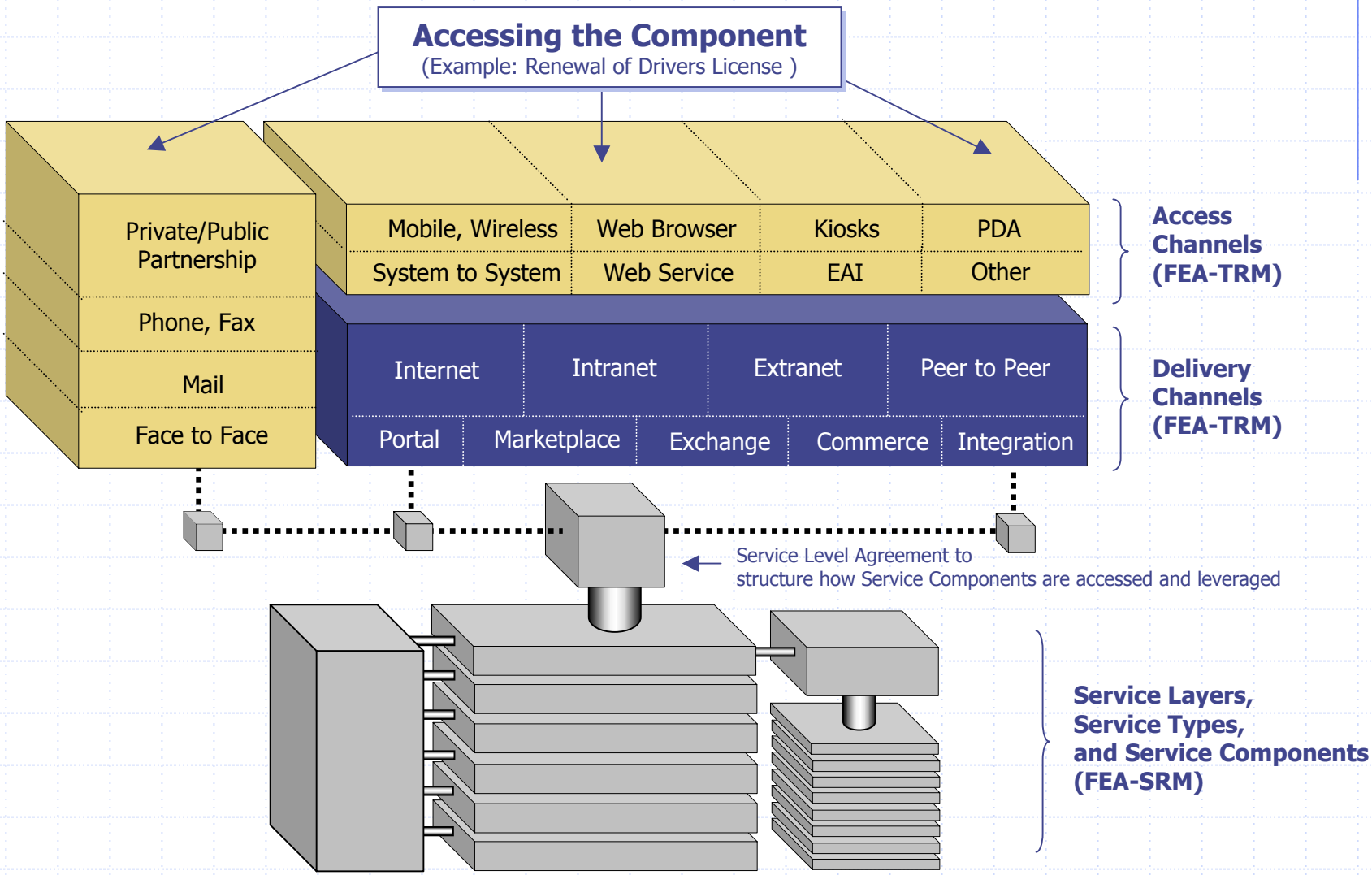
143 Service Components

Service Component Reference Model (SRM) – Version 1.0

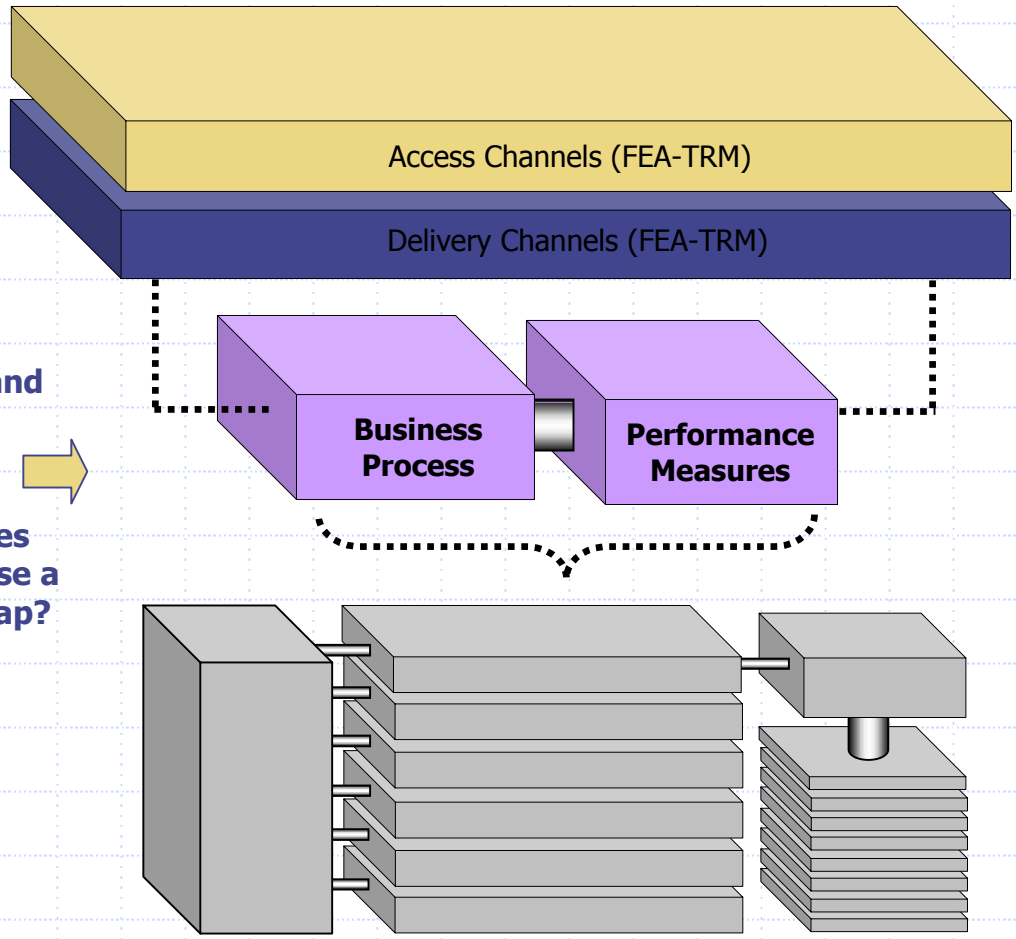
The SRM is structured across horizontal and vertical service areas that can provide – independent of business function – a leverageable foundation for reuse of applications, application capabilities, components, functions, and business services.



The SRM is supported by multiple Access and Delivery Channels that provide a foundation for accessing and leveraging the Service Component



Additionally, the SRM assists in helping define business process and performance gaps – that may be leveraged to improve services to stakeholders (i.e., citizens, business partners, agencies)



What level of process, performance, and outcome is the service component achieving? Does this help to close a performance gap?

Access Channels (FEA-TRM)

Delivery Channels (FEA-TRM)

Performance and Measures (FEA-PRM)

Service Layers, Service Types, and Service Components (FEA-SRM)

Customer Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities that are directly related to the end customer, the business' interaction with the customer, and the customer driven activities or functions.

Customer Relationship Management (CRM)	Customer Preferences	Customer Initiated Assistance
Call Center Management	Personalization	Online Help
Customer Analytics	Subscriptions	Online Tutorials
Sales and Marketing	Alerts and Notifications	Self-Service
Product / Brand Management	Profile Management	Reservations / Registration
Customer / Account Management		Multi-Lingual Support
Contact Management		Assistance Request
Partner Relationship Mgmt		
Customer Feedback		
Surveys		

Process Automation Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities that support the automation of process and management activities that assist in effectively managing the business.

Tracking and Workflow

Process Tracking
Problem / Issue Tracking
Performance Tracking
Case Management

Routing and Scheduling

Correspondence Management
Business Rule Management

Business Management Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities that support the management of business functions and organizational activities that maintain continuity across the business and value-chain participants.

Management of Process

Change Management
Configuration Management
Requirements Management
Program / Project Management
Governance / Policy Mgmt
Quality Management

Organizational Management

Network Management
Workgroup, Groupware

Investment Management

Strategic Planning & Mgmt
Portfolio Management
Performance Management

Supply Chain Management (SCM)

Manufacturing and Production
Inventory Management
Purchasing
Sales and Distribution
Scheduling and Delivery
Logistics Management

Procurement

Sourcing Management
Catalog Management
Ordering / Purchasing
Order Tracking
Storefront / Shopping Cart

Digital Asset Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities that support the generation, management, and distribution of intellectual capital and electronic media across the business and extended enterprise.

Content Management	Document Management	Knowledge Management
Content Authoring	Document Imaging	Information Retrieval
Content Review and Approval	Document Referencing	Information Mapping / Taxonomy
Tagging and Aggregation	Document Revisions	Information Sharing
Content Publishing and Delivery	Library / Storage	Categorization
Syndication Management	Document Review and Approval	Knowledge Engineering
	Document Conversion	Knowledge Capture
	Indexing	Knowledge Discovery

Business Analytical Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities supporting the extraction, aggregation, and presentation of information to facilitate decision analysis and business evaluation.

Analysis and Statistics

Modeling
Predictive
Simulation
Mathematical
Structural, Thermal

Visualization

Graphing, Charting
Imagery
Multimedia
Mapping / Geospacial
CAD

Business Intelligence

Risk Management
Demand Forecasting / Mgmt
Balanced Scorecard
Decision Support and Planning
Data Mining

Reporting

Ad-Hoc
Standardized / Canned
OLAP

Back Office Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of capabilities that support the management of enterprise planning and transactional-based functions

Data Management

Data Exchange
Data Mart
Data Warehouse
Meta Data Management
Data Cleansing
Extraction and Transformation
Loading and Archiving
Records Management
- Authenticity - Integrity
- Reliability - Disposition

Human Resources

Recruiting
Resume Management
Career Development
Time Reporting
Benefit Management
Retirement Management
Personal Administration
Education / Training

Financial Management

Billing and Accounting
Credit / Charge
Expense Management
Payroll
Payment / Settlement
Debt Collection
Auditing
Activity-Based Management
Currency Translation

Assets / Materials Management

Asset Cataloging / Identification
Asset Transfer and Allocation
Facilities Management

Integration

Legacy Integration
Enterprise Application Integration
Data Integration

Human Capital / Workforce Management

Resource Planning and Allocation
Skills Management
Workforce Directory / Locator
Team / Org Management
Contingent Workforce Management
Workforce Acquisition / Optimization

Support Services

Extended descriptions of capabilities and functions are provided in Appendix B.

Defines the set of cross-functional capabilities that can be leveraged independent of service layer objective and / or mission.

Security Management

Identification
Access Control
Encryption
Intrusion Detection
Verification
Digital Signature
User Management
Role / Privilege Management

Collaboration

Email
Threaded Discussions
Document Library
Shared Calendaring
Task Management

Search

Keyword
Context
Free Text
Parametric

Communication

Real-Time / Chat
Instant Messaging
Audio Conferencing
Video Conferencing
Event / News Management
Community Management

The SRM may be used in multiple forums to support transformational processes and strategic activities

- Investment Planning
  - Creation of Joint / Cross-Agency Exhibit 300 Submissions
  - IT Capital Planning (Select, Control, Evaluate)
  - Target Enterprise Architecture Definition and Realization
  - Reallocation of funds and workforce
  - Expansion of business services
- Initiative Development
  - Leverage existing capabilities vs. re-inventing the wheel
  - Embrace proven capabilities
  - Rapid assembly of solutions, increased speed to market

As an example, the SRM can be integrated into existing IT Capital or Enterprise Architecture (EA) planning processes…

Illustrative

1 A new performance gap is identified. How do I improve performance?

2 Is the business function being performed across the Government?

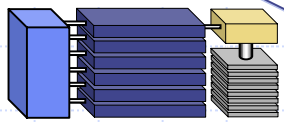
Same Business Process?

Yes

No

FEA Business Reference Model (BRM)

3 What Service Components are being used to support the business and process?



Service Component Reference Model (SRM)

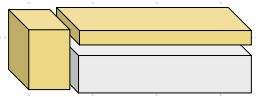
4 What performance measures, and outcomes are the Service Components supporting?

Performance Reference Model (PRM)

5 Will the Components support the business need? What modifications are needed?

Service Level Agreements

6 What Access Channels can be used to access the Component? (i.e., Web Service, Portal, etc)



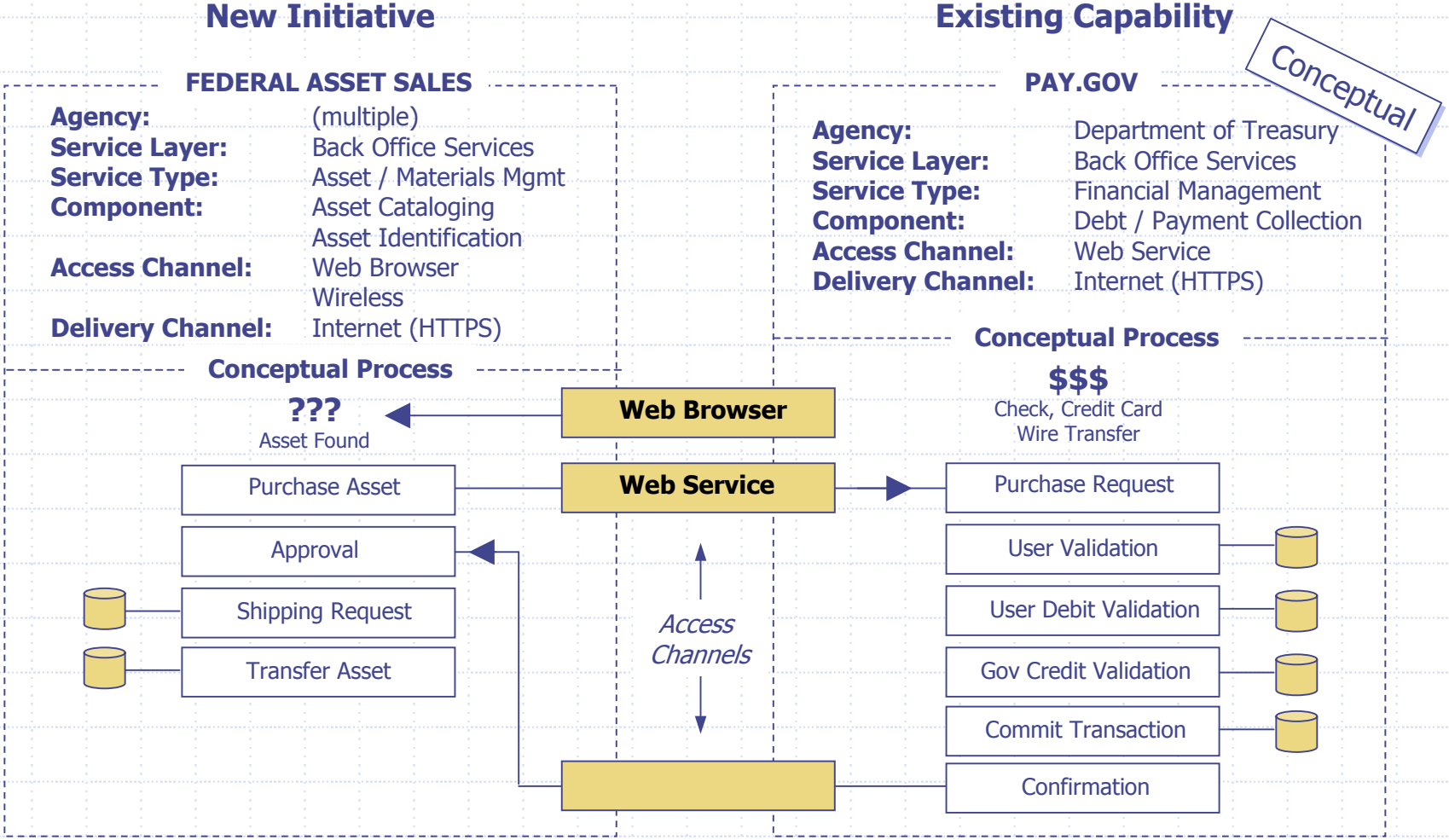
Access and Delivery Channels

Create Service Component, Advance FEA Capabilities

Exhibit 300's

Buy, Build, Borrow

The results can assist in rapidly developing or expanding business capabilities… that leverage existing and proven capabilities



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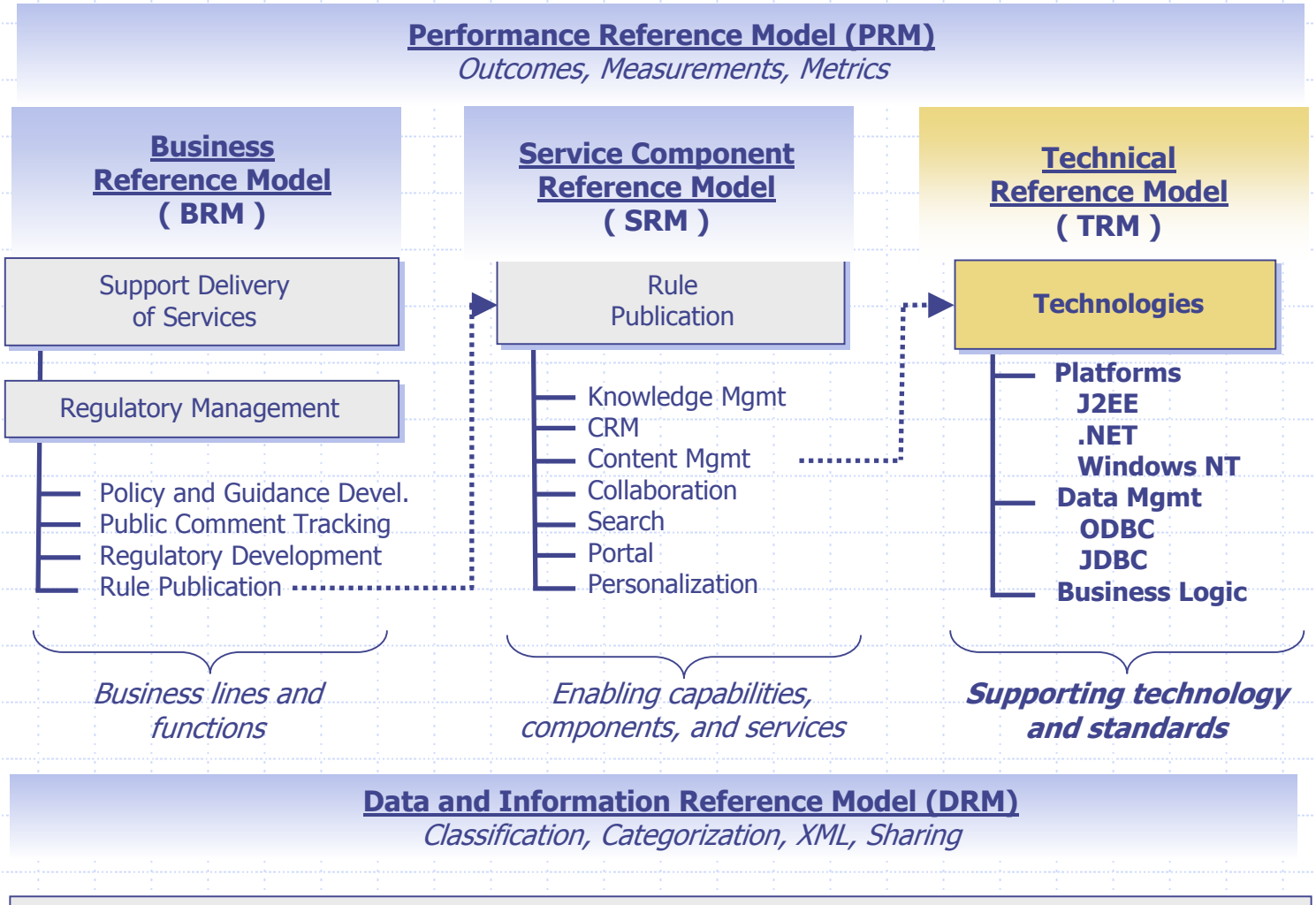
The FEA Technical Reference Model (TRM) is a component-driven, technical framework that identifies the standards and specifications that comprise a Service Component

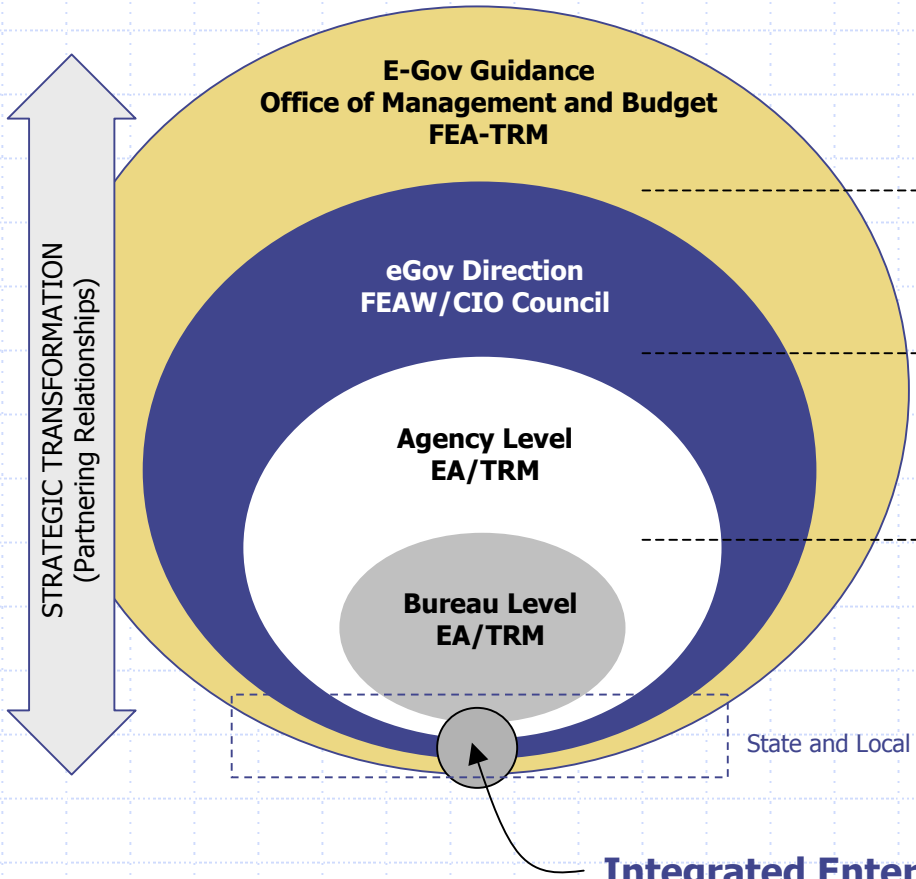


The FEAPMO identified core objectives to support the creation of the TRM

FEA TRM Objectives:

- **Unify** Agency TRM's and CIO Council e-Gov direction
- Create a government-wide TRM that **compliments and guides** (but does not replace) agency TRMs and existing eGov guidance
- Focus TRM standards, specifications, and recommendations on technologies that **embrace the Internet** and related approaches
- Create a foundation that focuses heavily on the **delivery and construction** of Service Components and their interfaces
- Identify the layers of a **Component-Based Architecture** and the supporting technologies and recommendations for each
- Provide standards to support **trade-off analysis** surrounding how to construct, exchange, and deliver service components
- Leverage today's state-of-the-art technologies

The FEA TRM is intended to supplement existing TRM and eGov guidance by providing a foundation to advance the reuse of technology and component services from a government-wide perspective



- Citizen Focused
- Interoperability, State / Local
- Service Component / Technology Reuse, CBA
- Government Technical Standards
- Strengthen e-Gov Act

- e-Government Technology Specifications
- e-Government Building Blocks, Assembly
- OSE/OSI Service Layers, NIST

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- Strategic Planning, IT Capital Planning
- Baseline -> Target Enterprise Architectures

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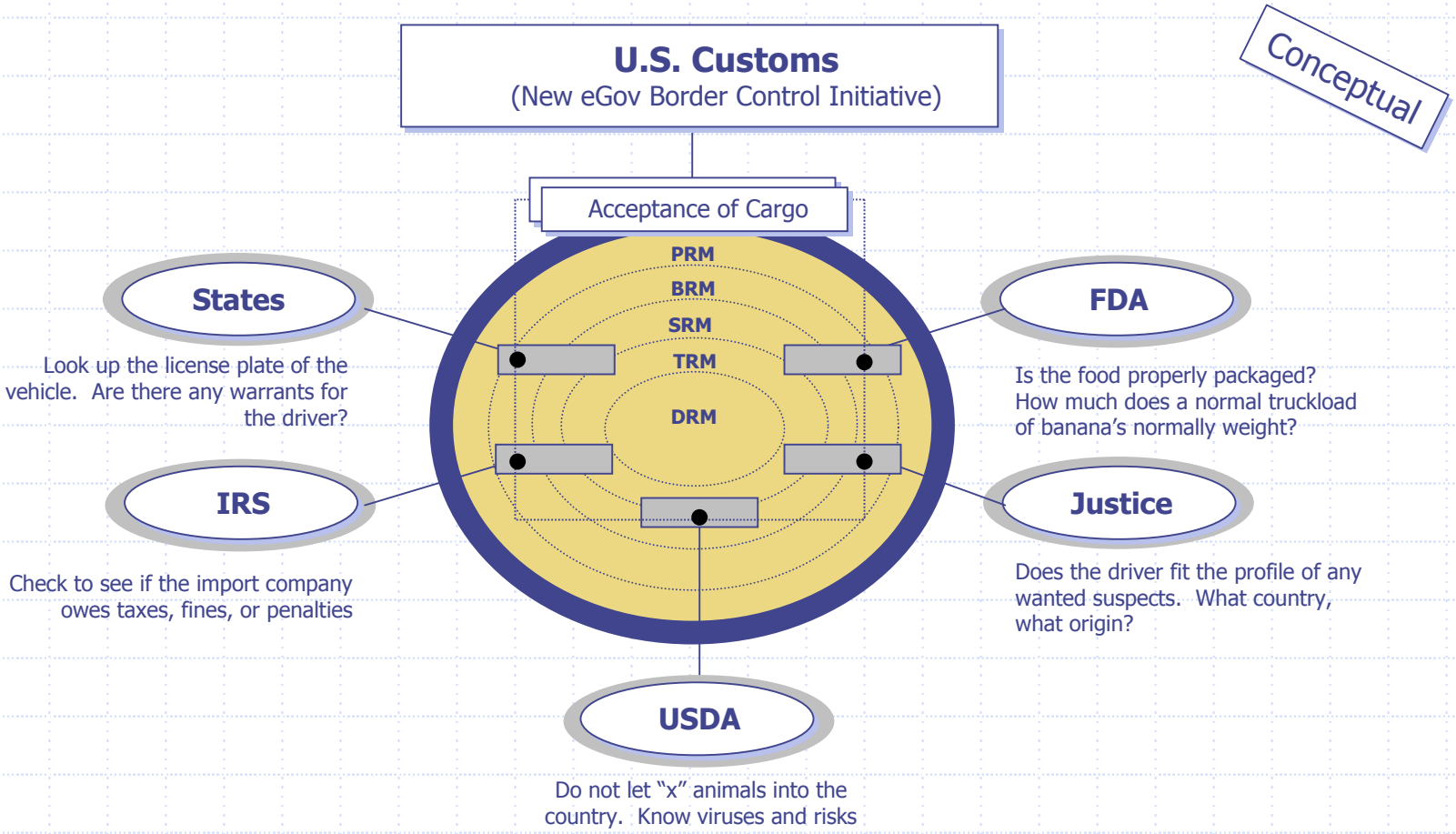
- Mission Accomplishment
- Initiative Identification / Management

Integrated Enterprise Architectures
(Interoperable, Maximum Reuse of Components)

In use, the TRM and other FEA reference models can be leveraged to support the creation and integration of cross-agency Service Components



The TRM is comprised of three (3) technical tiers to support the construction, exchange, and delivery of component-driven, Service Components

FEA TRM Technical Tiers:

Service Access and Delivery
The collection of Access and Delivery Channels that will be used to leverage the Service Component, and the Legislative Requirements that govern it's use and interaction

How to leverage and access Service Components

Service Framework
The underlying foundation and technical elements by which Service Components are built, integrated and deployed across Component-Based and Distributed Architectures.

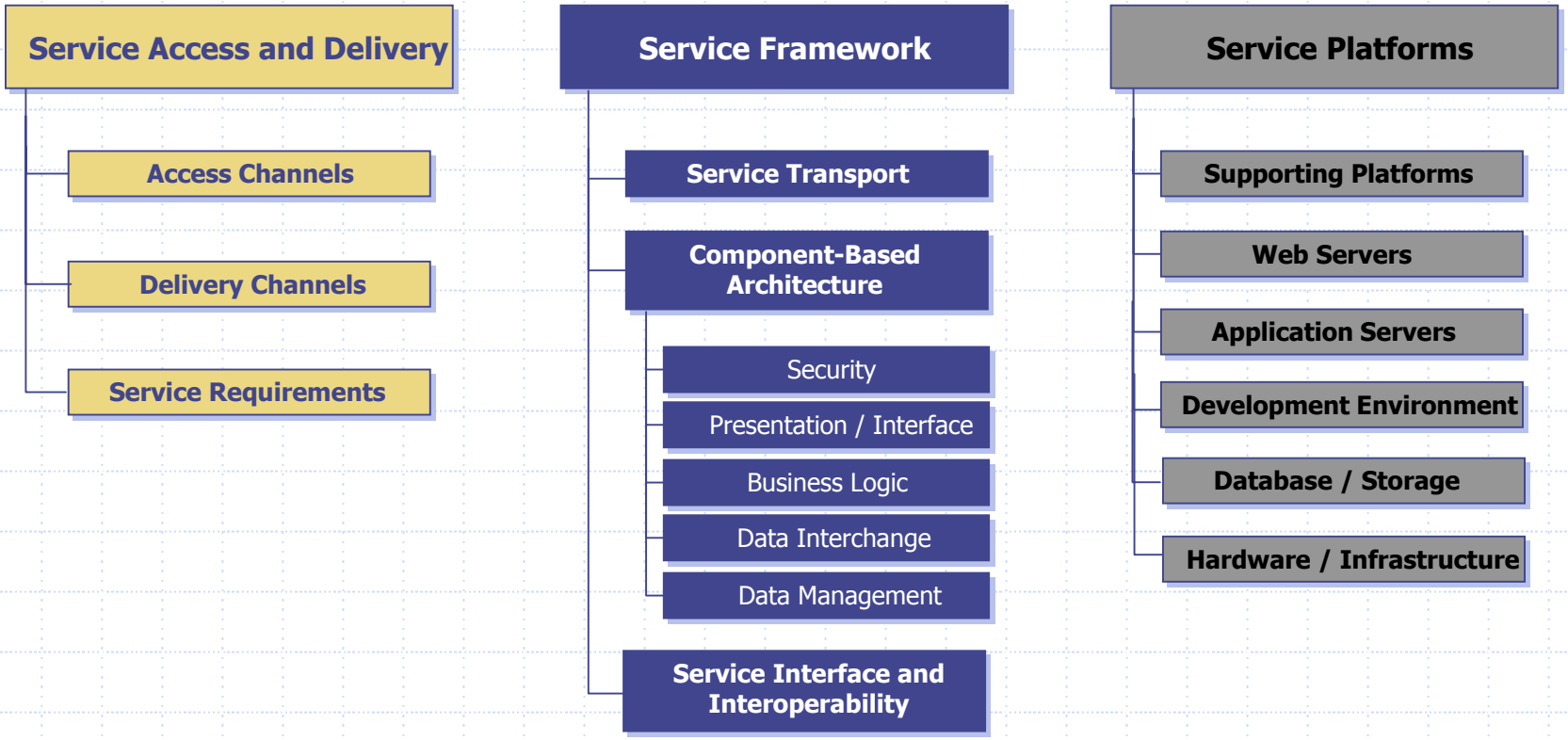
How to build, deploy, and exchange Service Components

Service Platform
A collection of platforms and specifications that embrace Component-Based Architectures and Service Component reuse

How to support and maintain Service Components

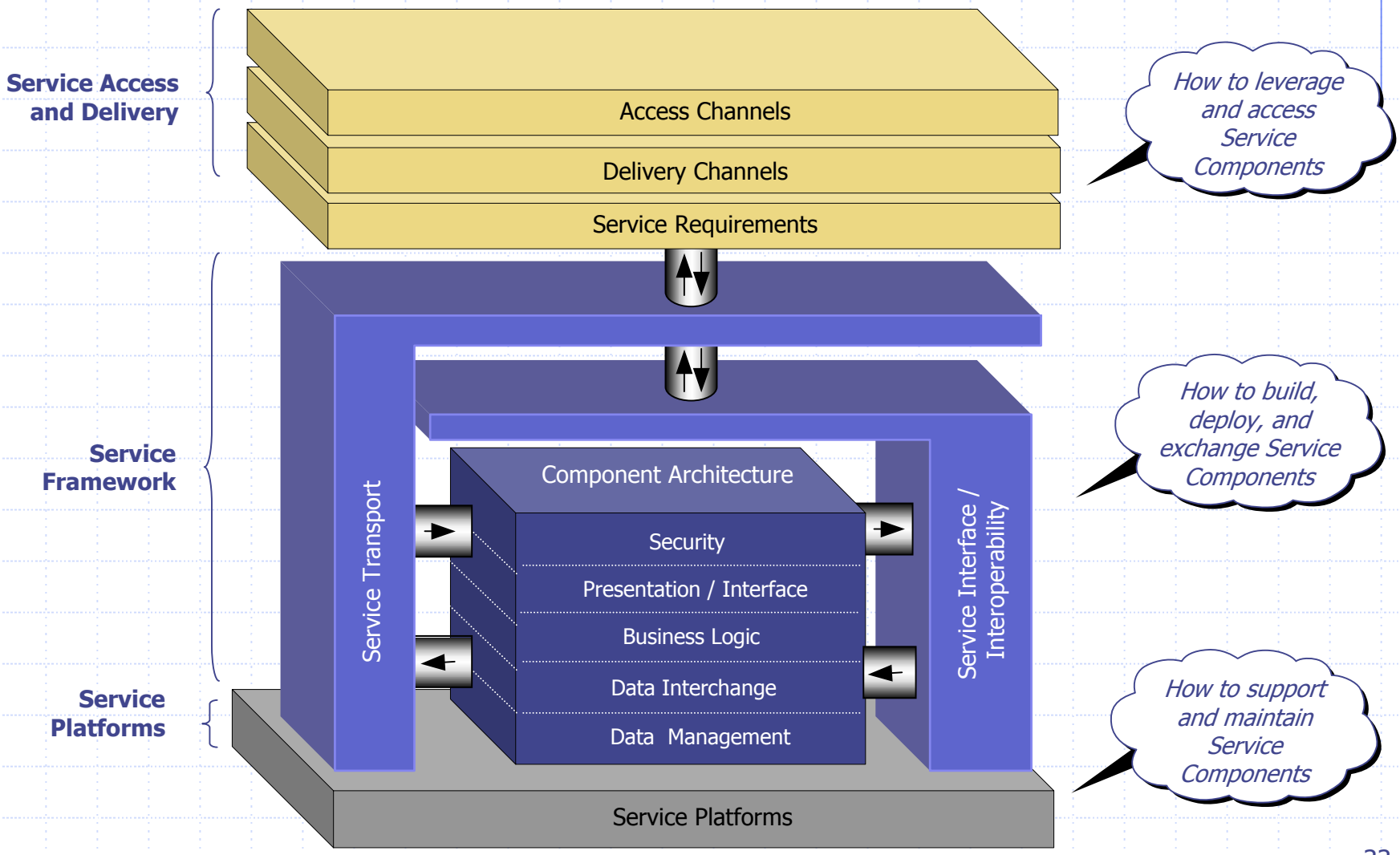
Each tier is comprised of multiple categories that describe the technologies, standards, and specifications that support the service component

FEA Technical Reference Model (TRM) - Snapshot

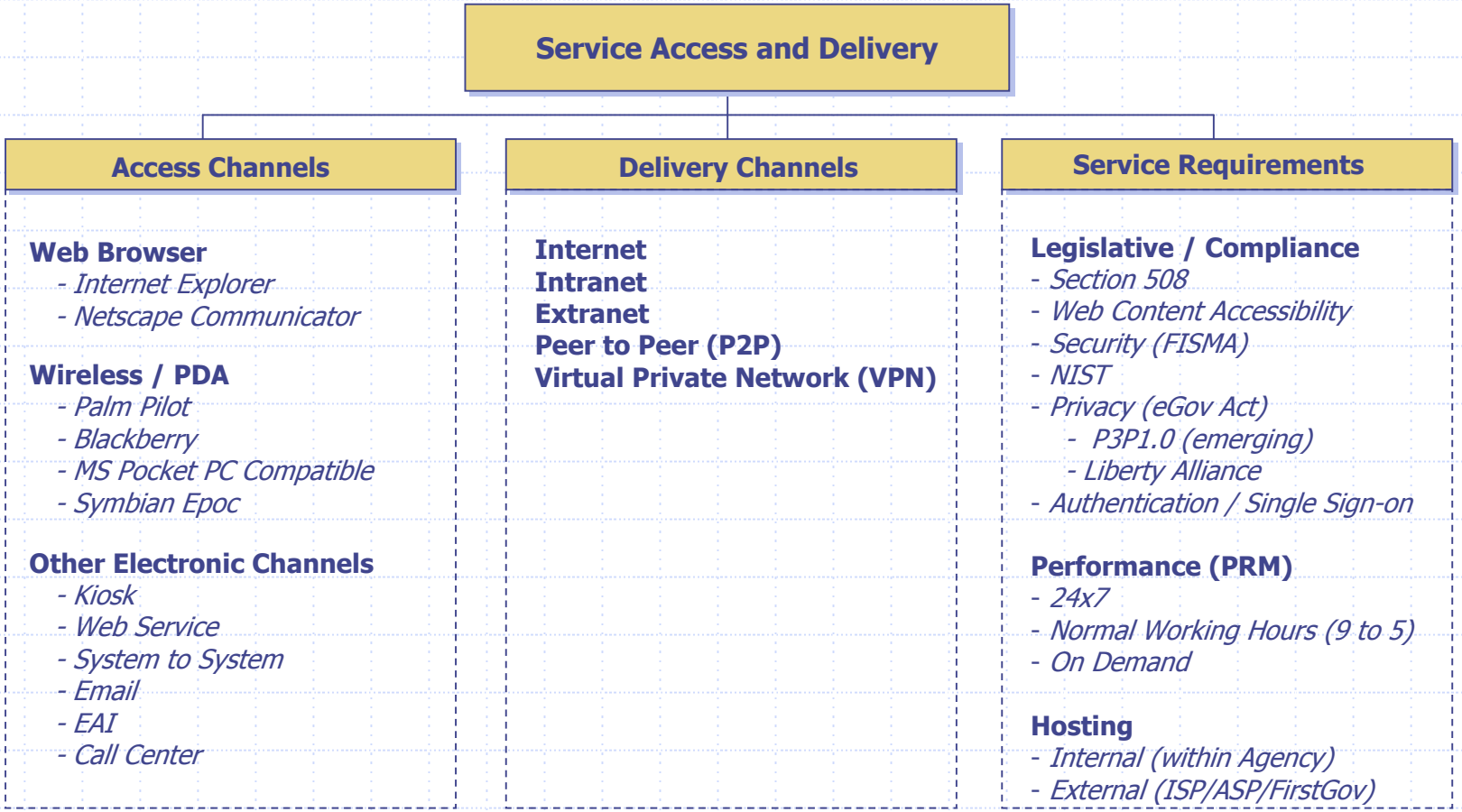


Collectively, the TRM technical tiers provide a robust and effective foundation to support the reuse and delivery of service components

FEA – Technical Reference Model



Supporting each Service Area, a collection of standards, technologies, and specifications were identified…



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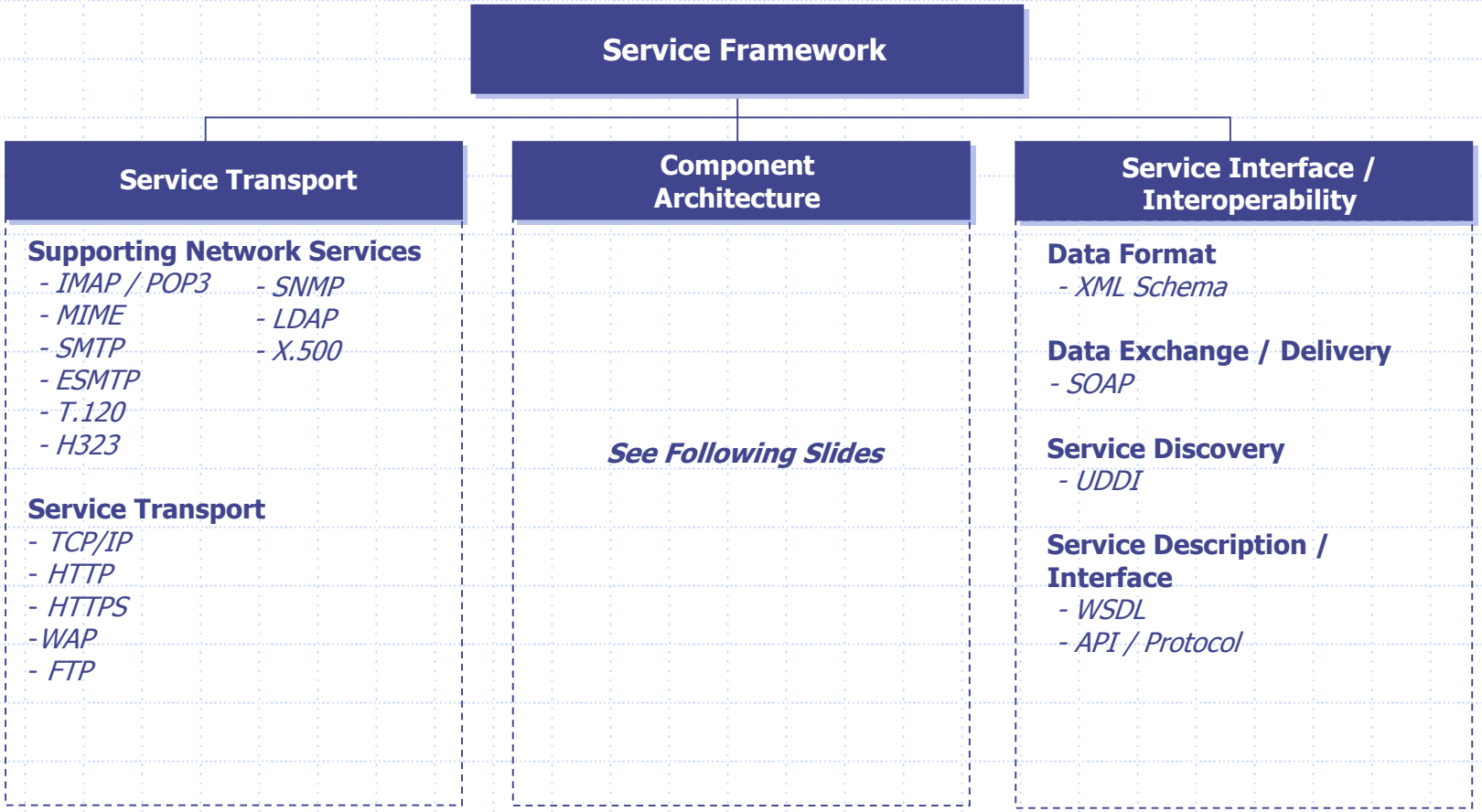

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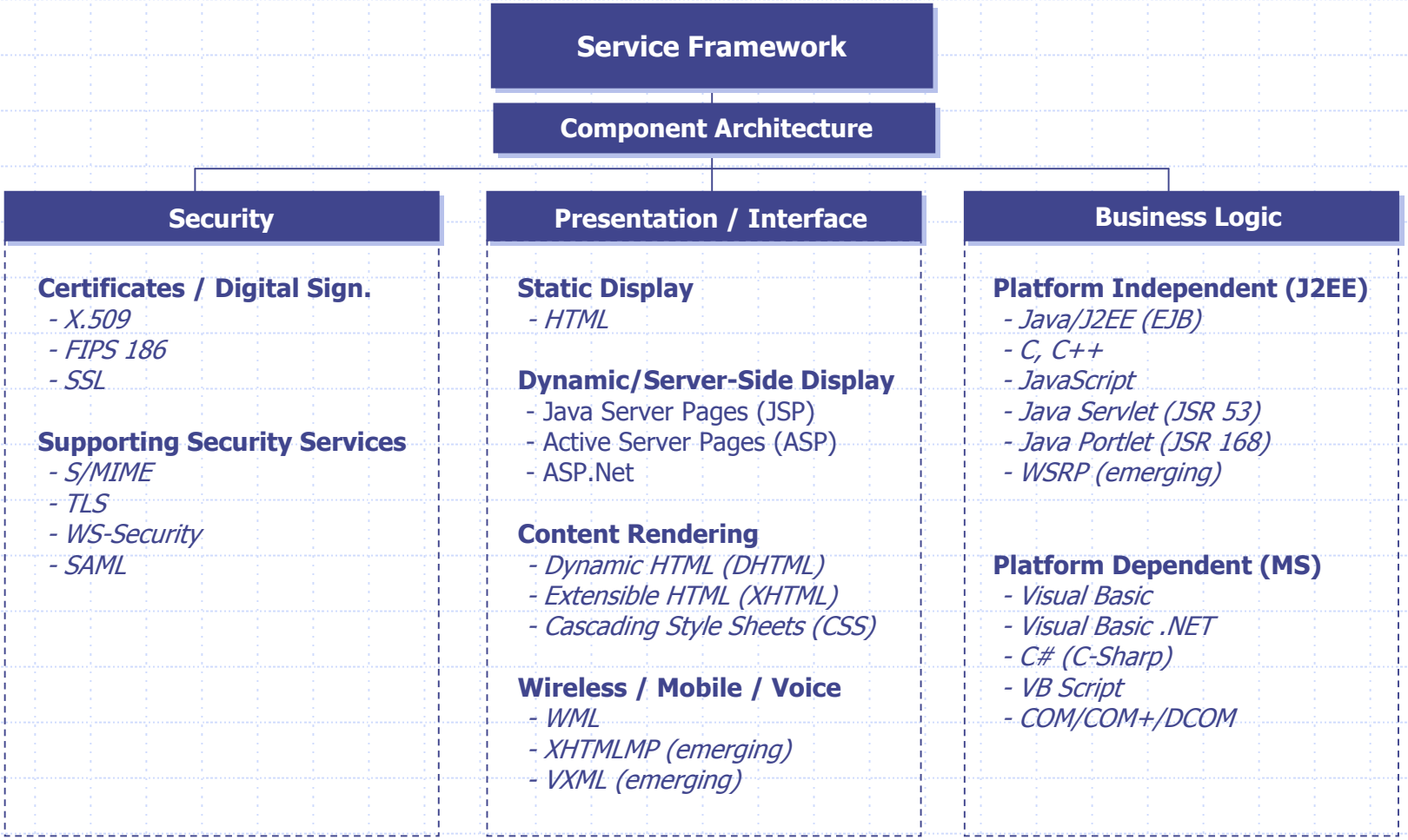

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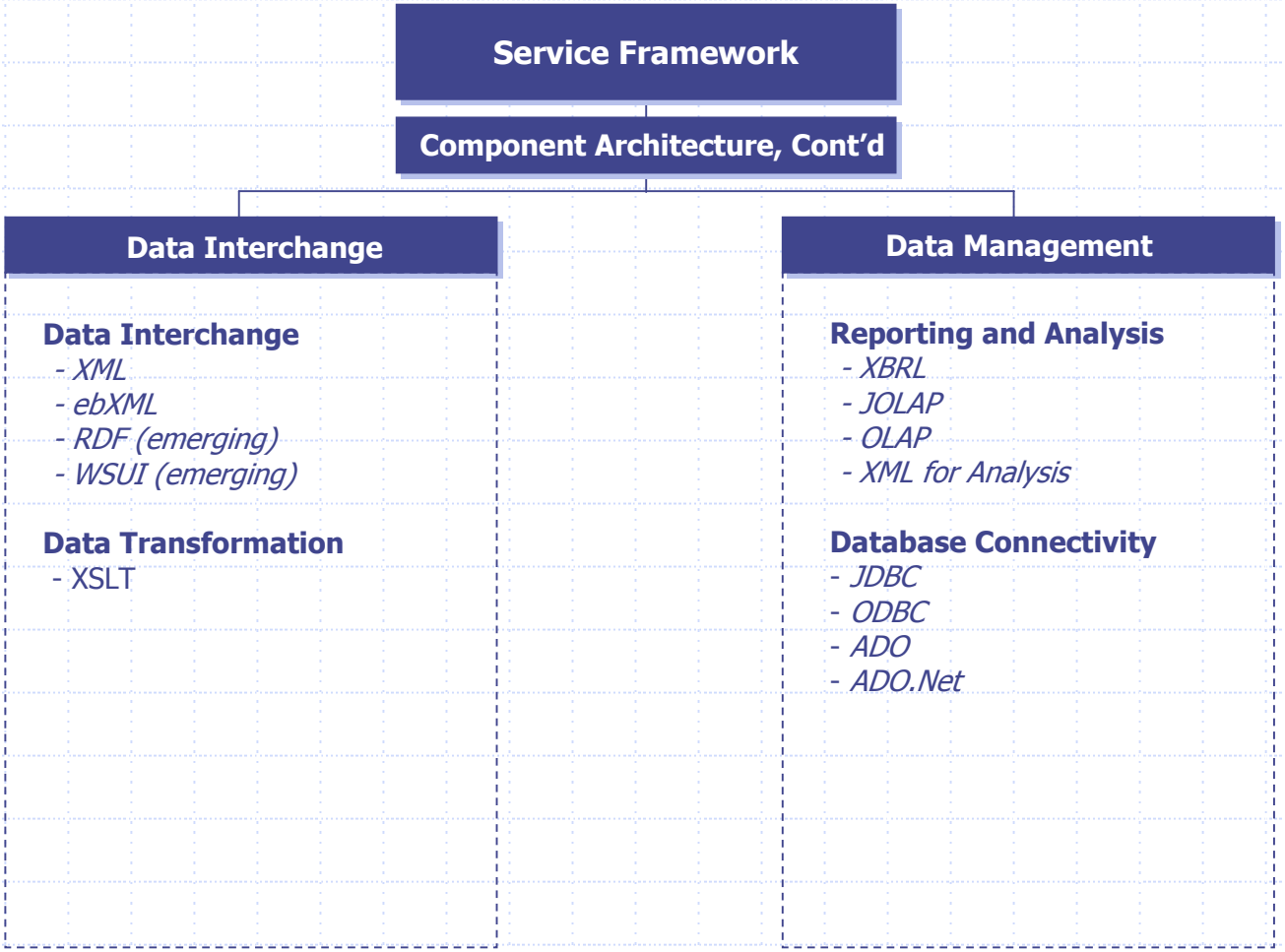

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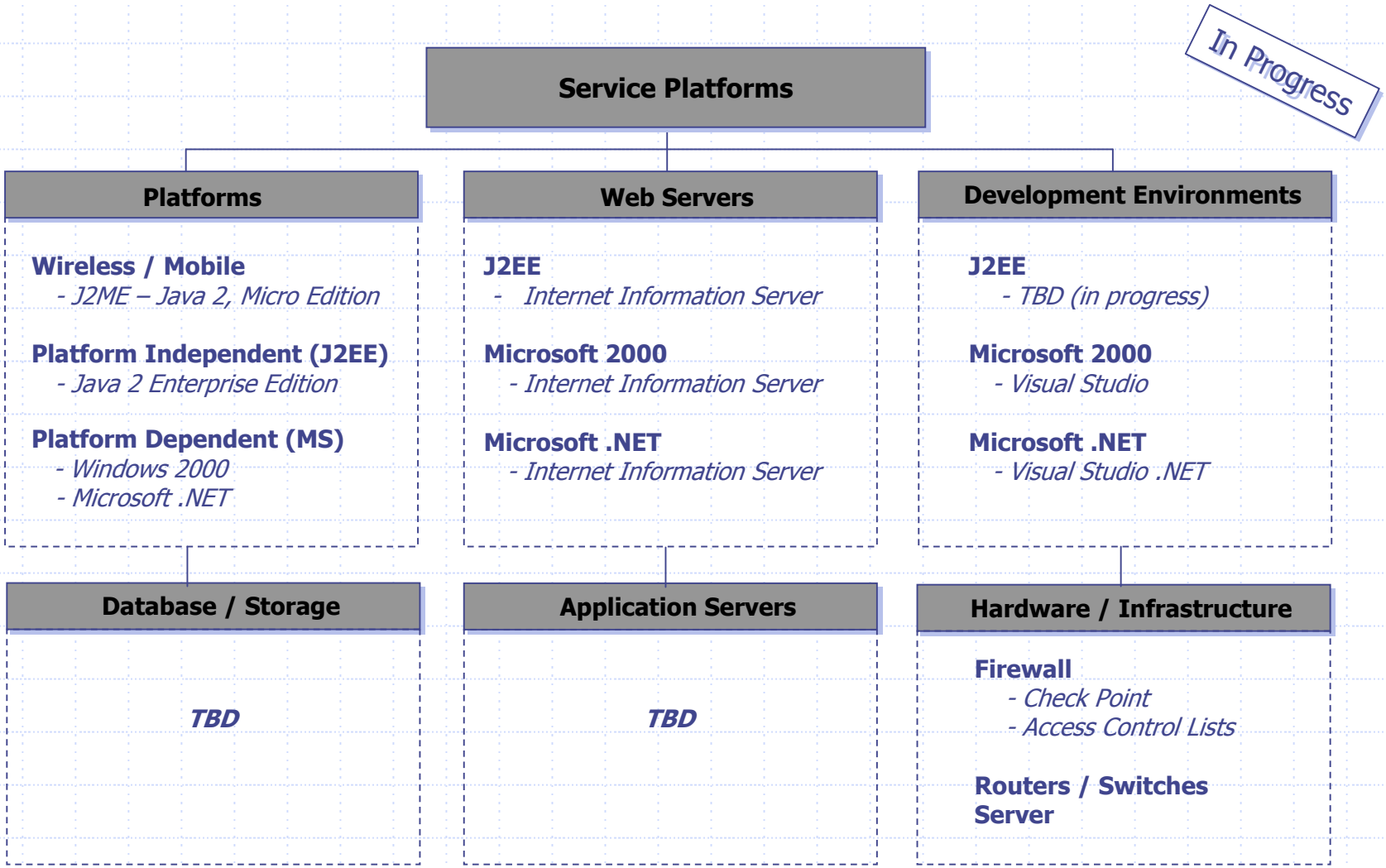
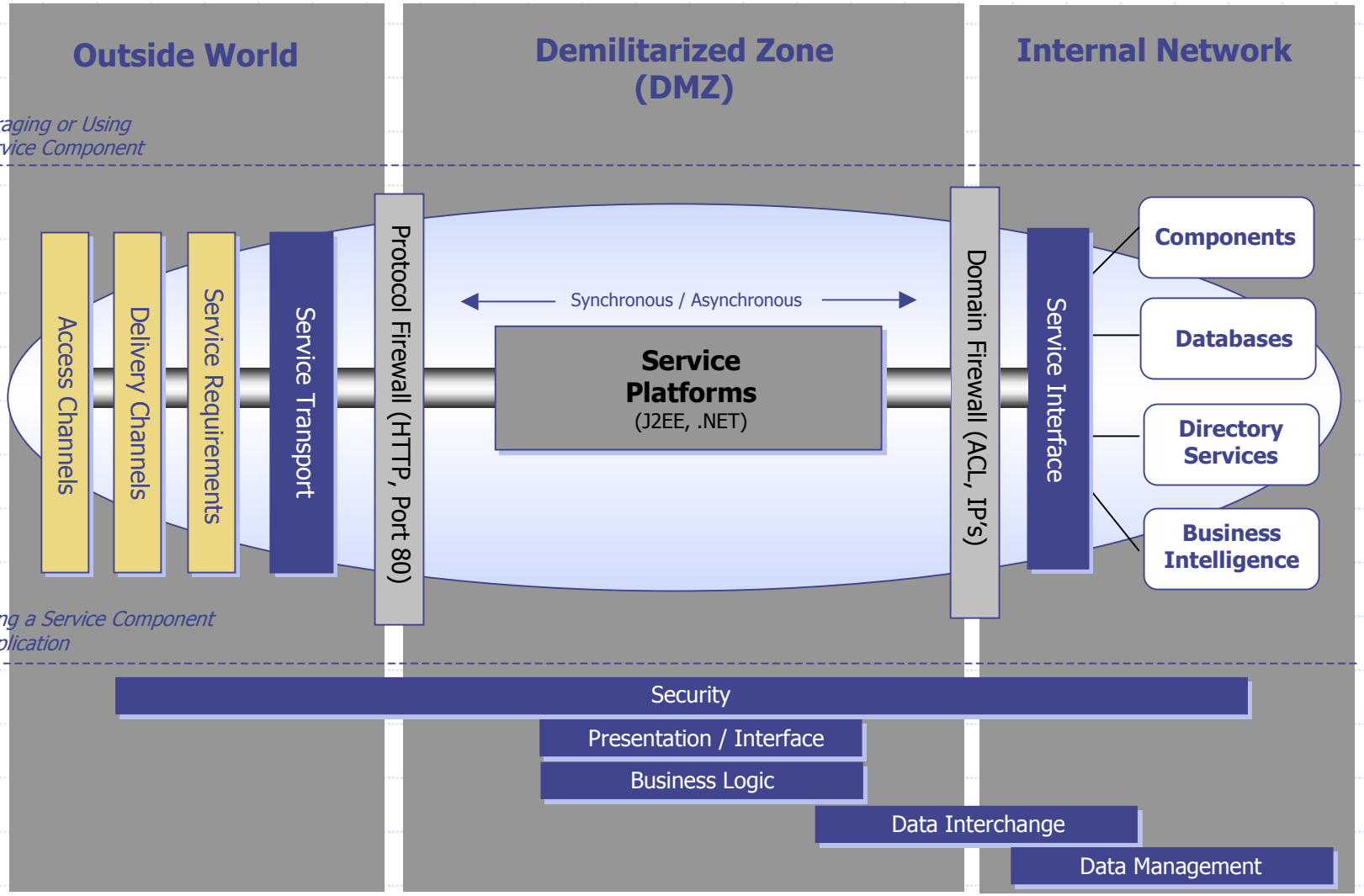


As a foundation, the tiers within the FEA TRM reside across a typical network and application topology



The TRM should be implemented in concert with the FEA Reference Models, and enabled through a suite of business and performance patterns

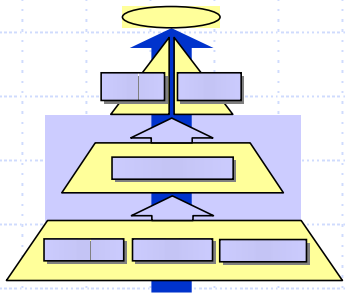
TRM Implementation Objectives:

- Define Patterns, Align to Technology Element of PRM
- Specific architectures for specific objectives
- What patterns of technology exist to solve a performance gap
- Choose Service Layers to support your architecture
- Choose Platform based on Agency TRM

Leveraging a patterns approach initiatives may choose to implement all (or some) of the TRM layers to close a performance gap

Example Pattern #1 – Back Office Integration

Performance Reference Model (PRM)

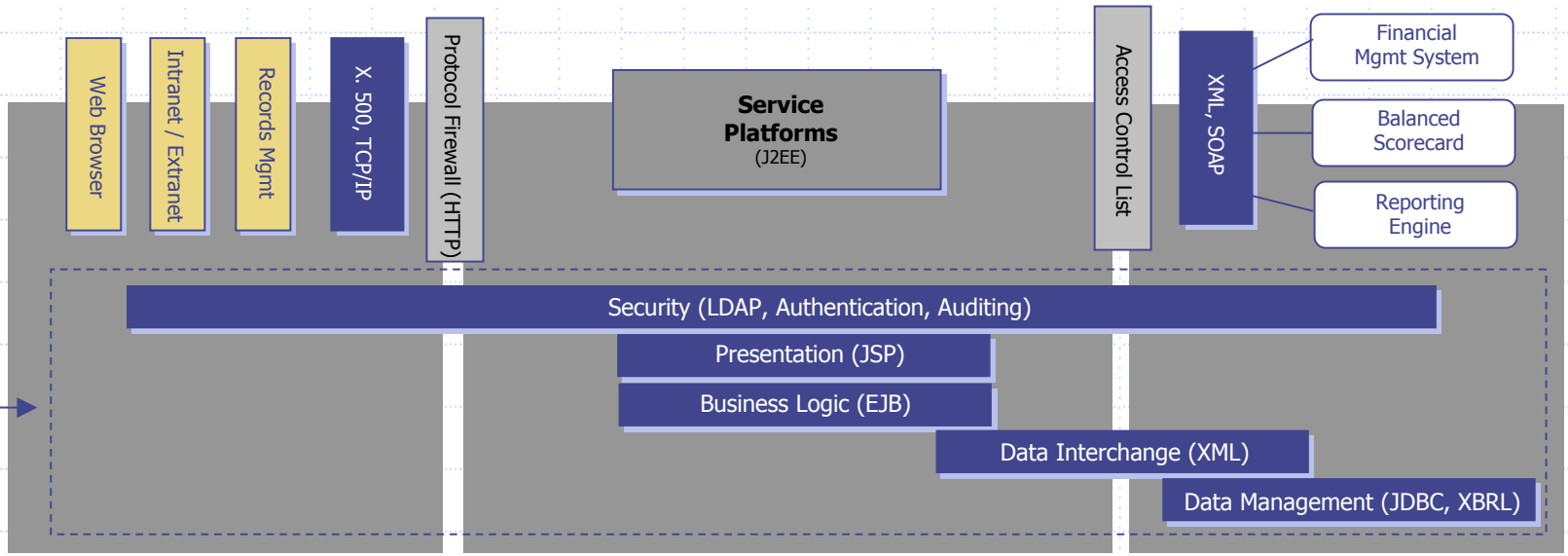


Defines

Initiative Business and Performance Drivers

- Reduce the latency of business events
- Easy to adapt during mergers and acquisitions
- Integration across multiple delivery channels
- Minimize total cost of ownership (TCO)
- Leverage existing skills
- Leverage legacy investment
- Maintainability
- Scalability

Defines The Architecture



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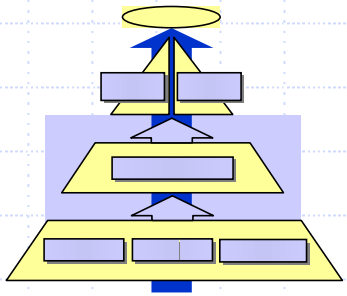
Example Pattern #2 – Rapid Information Sharing

Performance Reference Model (PRM)

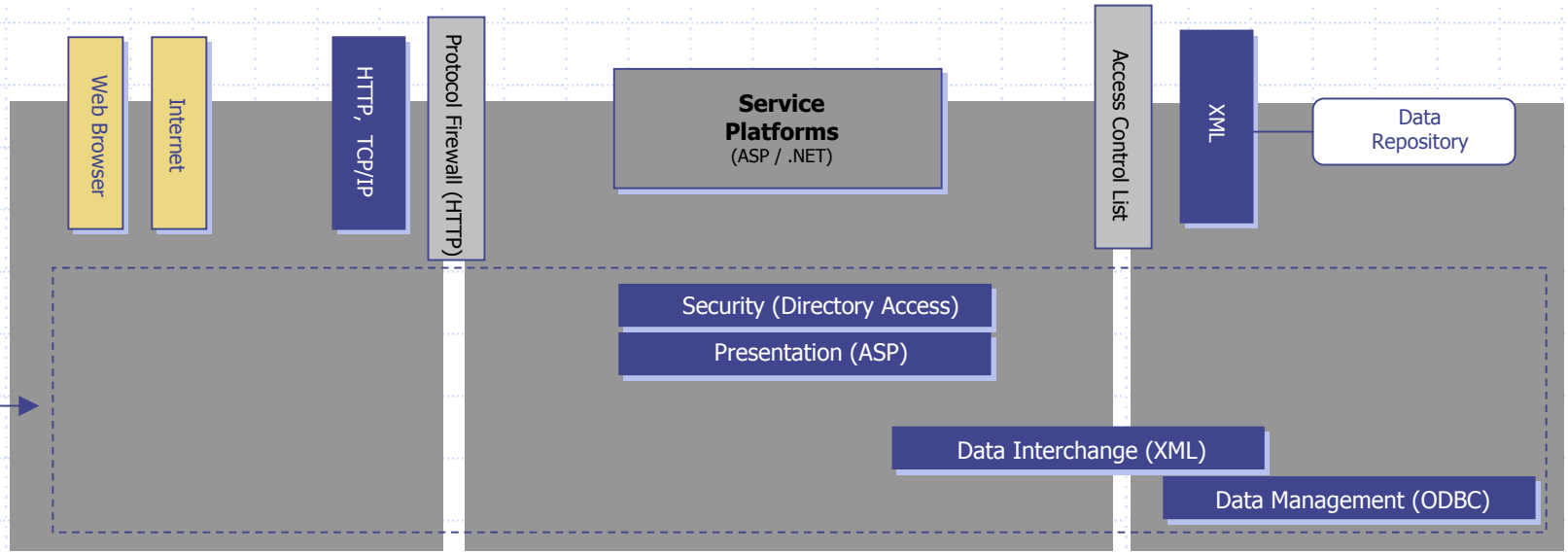


Defines

Initiative Business and Performance Drivers

- Time to Market
- Minimize application complexity
- Minimize Total Cost of Ownership (TCO)
- Leverage Existing Skills

Defines The Architecture



Other examples of Patterns….

- Horizontal and Vertical Information Sharing
  - State, Local, Tribal
- Integration with External News Provider
- Minimize Application Complexity
- Portal Integration
- Rapid Implementation
- System Consolidation
- Internal and External Partner Integration
- Mobile Communications
- Collaboration and Decentralized Collaboration
- Many, Many, Others…

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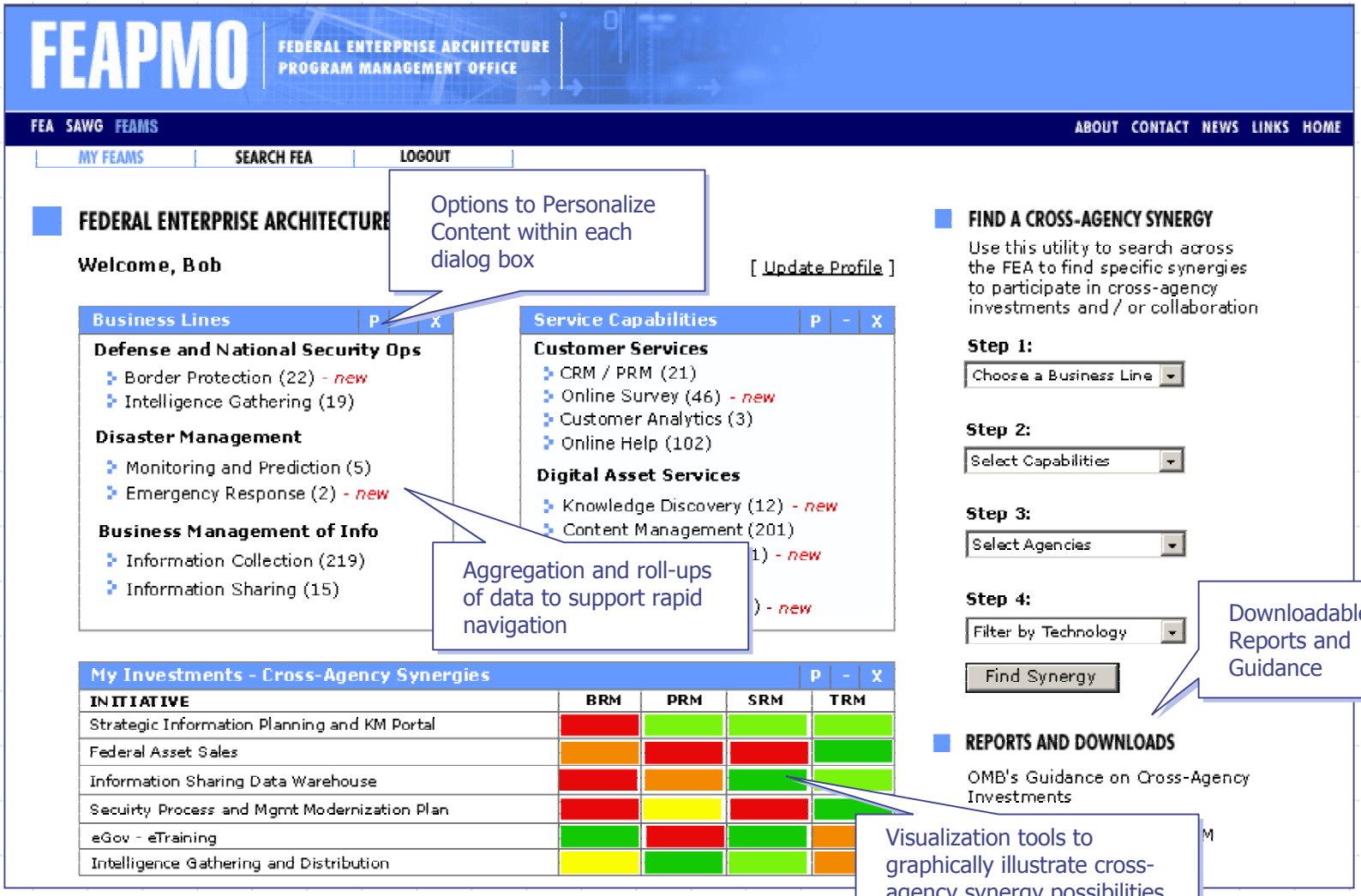
The Federal Enterprise Architecture Management System (FEAMS) was created to allow agencies to access the FEA to find opportunities for cross-agency collaboration and government capabilities

Specifically, FEAMS will provide:

- Alignment of Agency Exhibit 300's to the FEA Reference Models
- Data and Information to support cross-agency collaboration and investment reuse
- Capabilities, Components, and Government Services that may be leveraged
- Personalization and Role-Based Navigation (e.g., business analyst, solution architect, etc)
- Alerts and Notifications as new capabilities are discovered
- System Integration Capabilities
  - IT Capital Planning Systems
  - Enterprise Architecture Systems

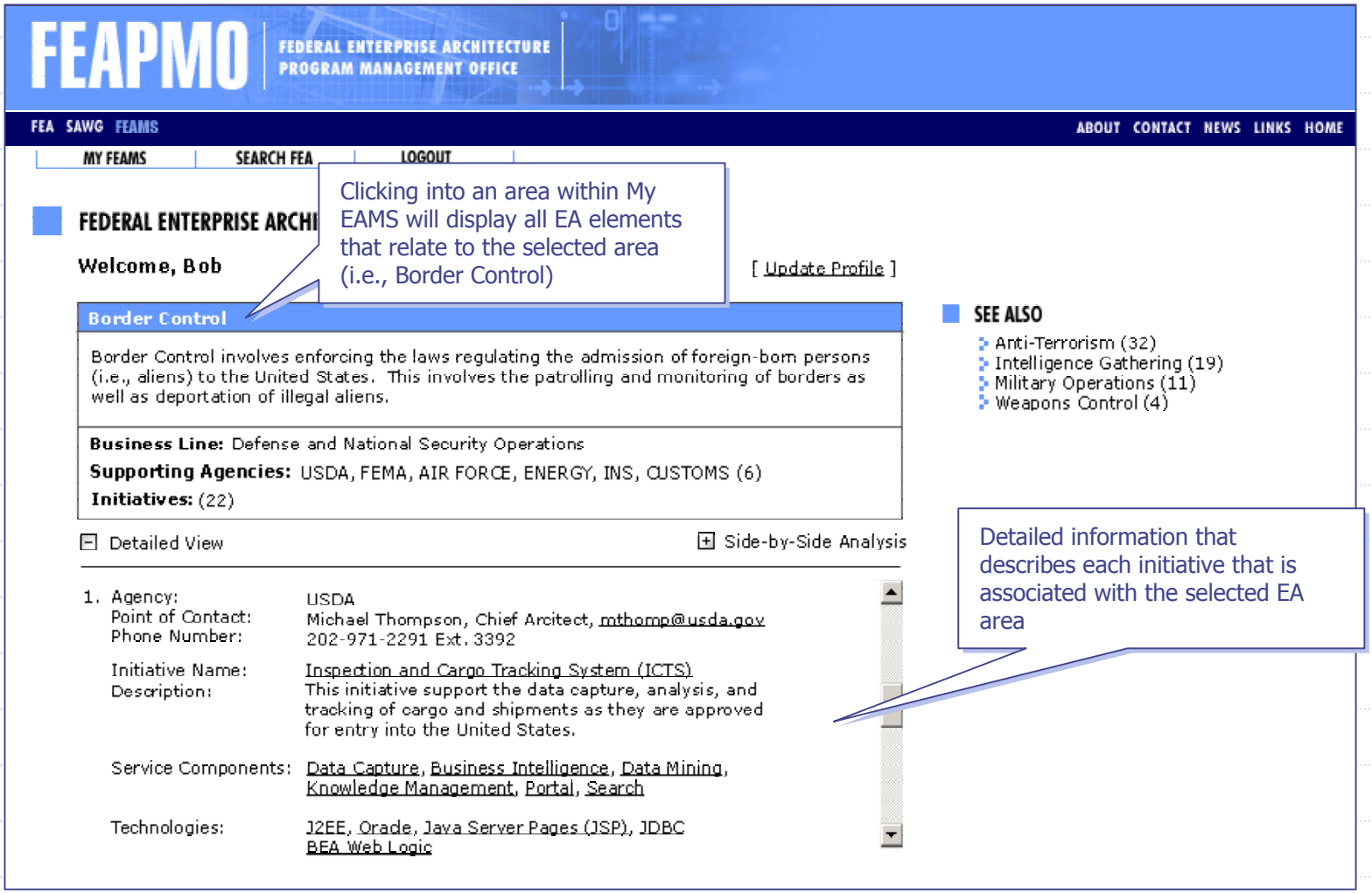
The Federal Enterprise Architecture Management System (FEAMS)

Personalization (My FEAMS), Content Aggregation



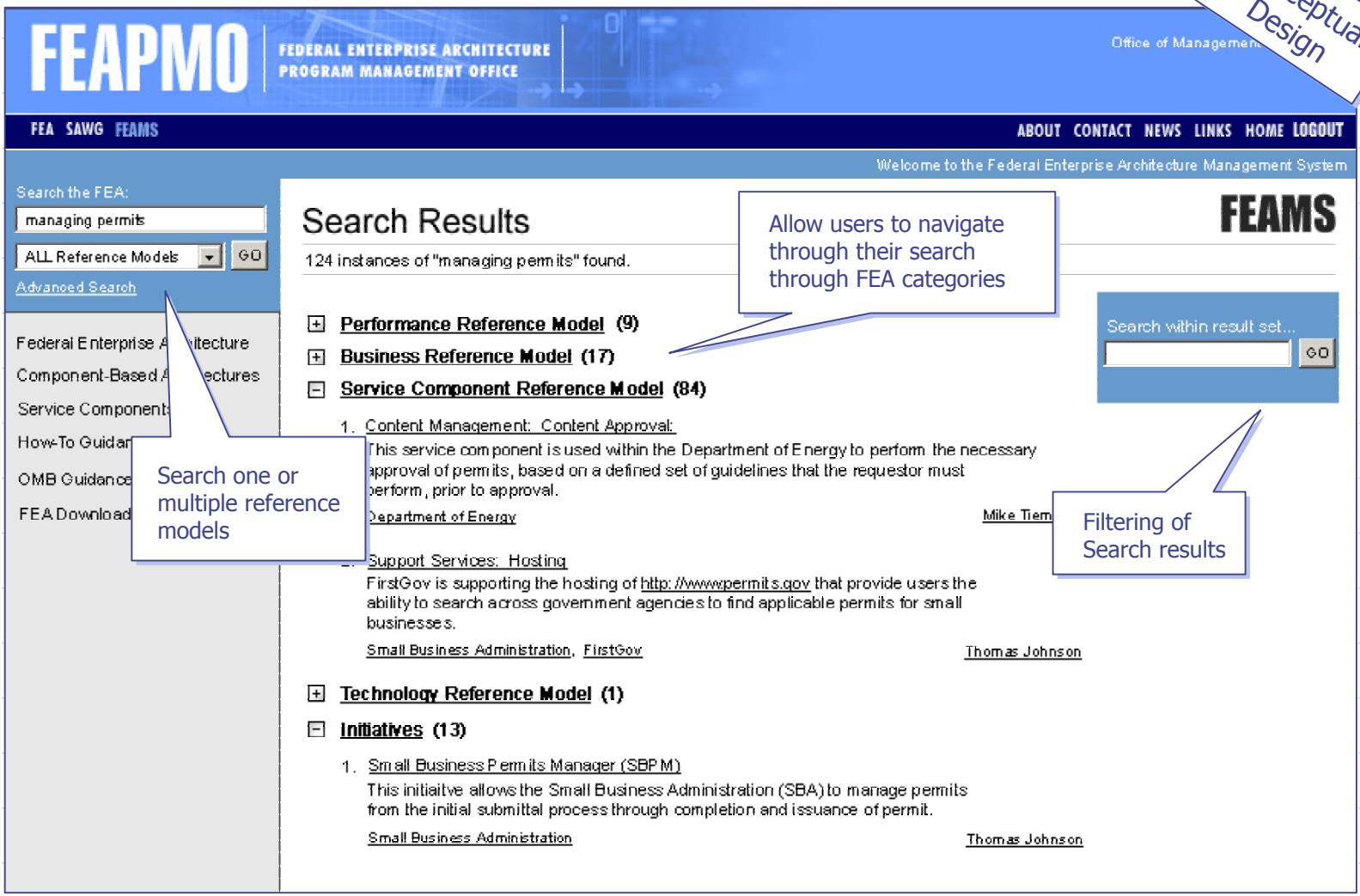
The Federal Enterprise Architecture Management System (FEAMS)

Initiative Detail, Improved Sharing Opportunities



The Federal Enterprise Architecture Management System (FEAMS)

Searching and Filtering for Initiatives



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Next Steps…

- Capture and Integrate Agency Feedback
- Release Version 1.0
  - Service Component Reference Model (SRM)
  - Technical Reference Model (TRM)
- Modify A-130 Guidance, Exhibit 300 Reporting
- Integrate SRM and TRM (and Exhibit 300 Linkages) into the Federal Enterprise Architecture Management System (FEAMS)
- Align FY04 agency initiatives to SRM and TRM
- Transition Ownership to the Architecture and Infrastructure (AIC) Committees
  - Components Subcommittee
  - Leveraging Technologies Subcommittee

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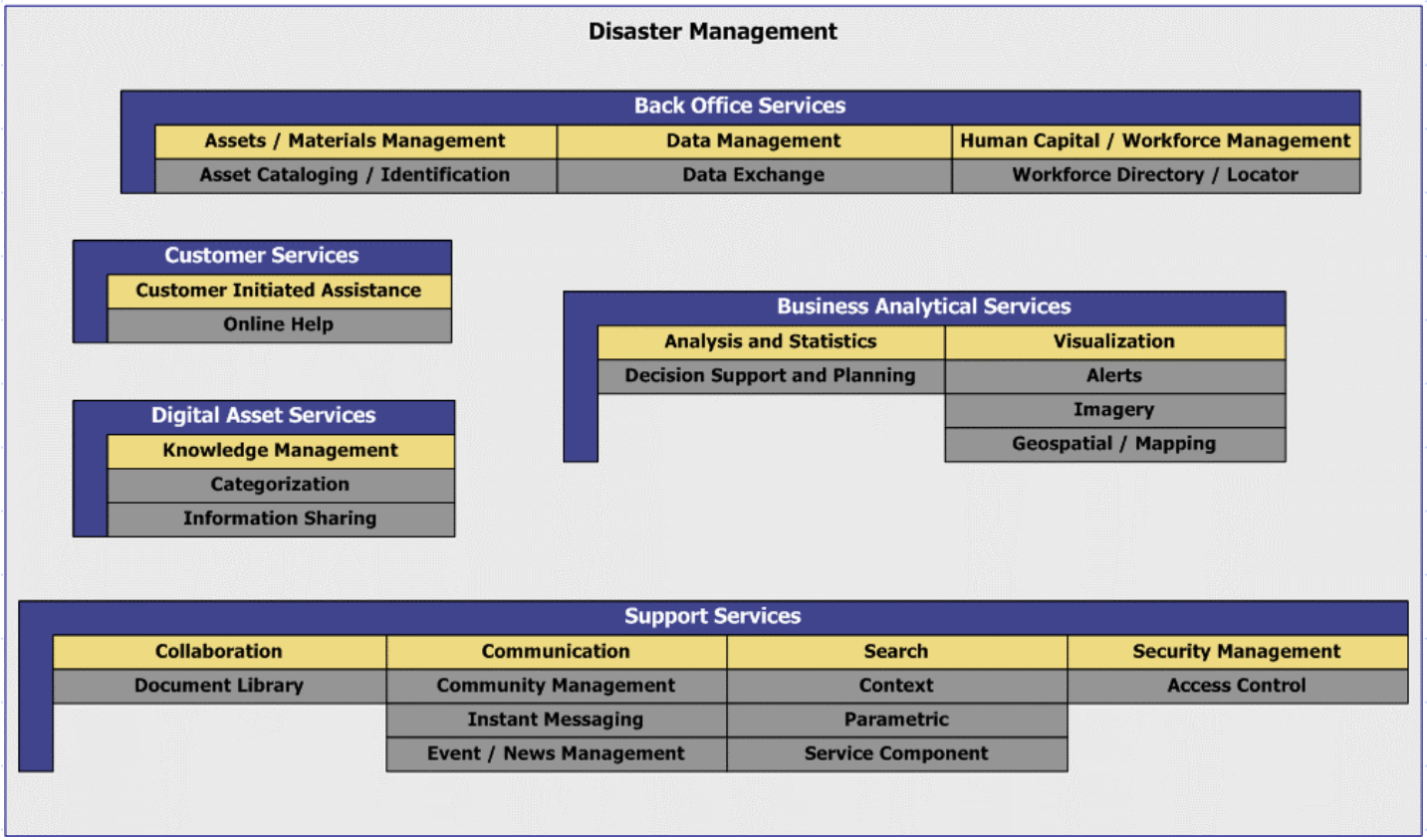
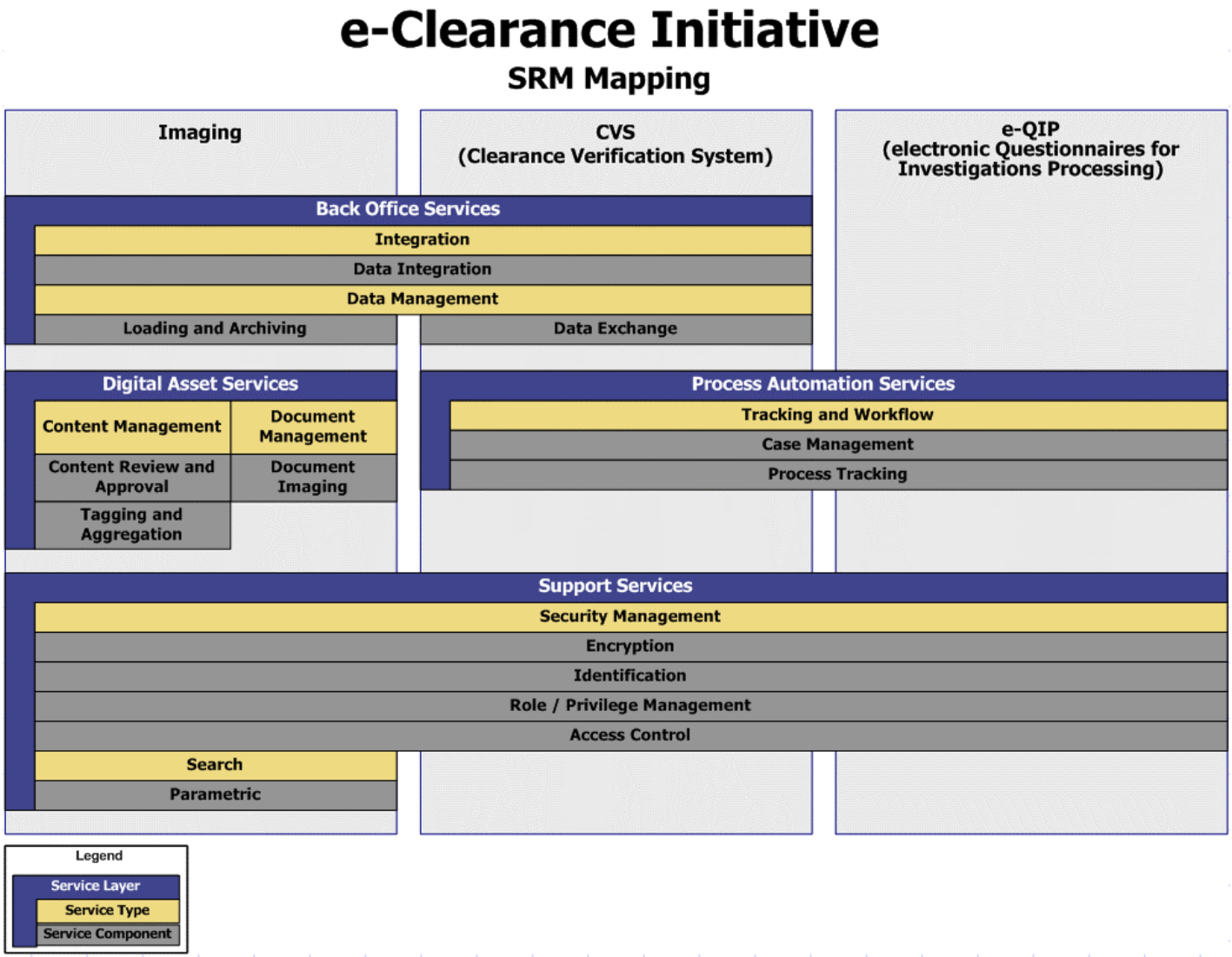
SRM Mappings and Alignment

Disaster Management Initiative

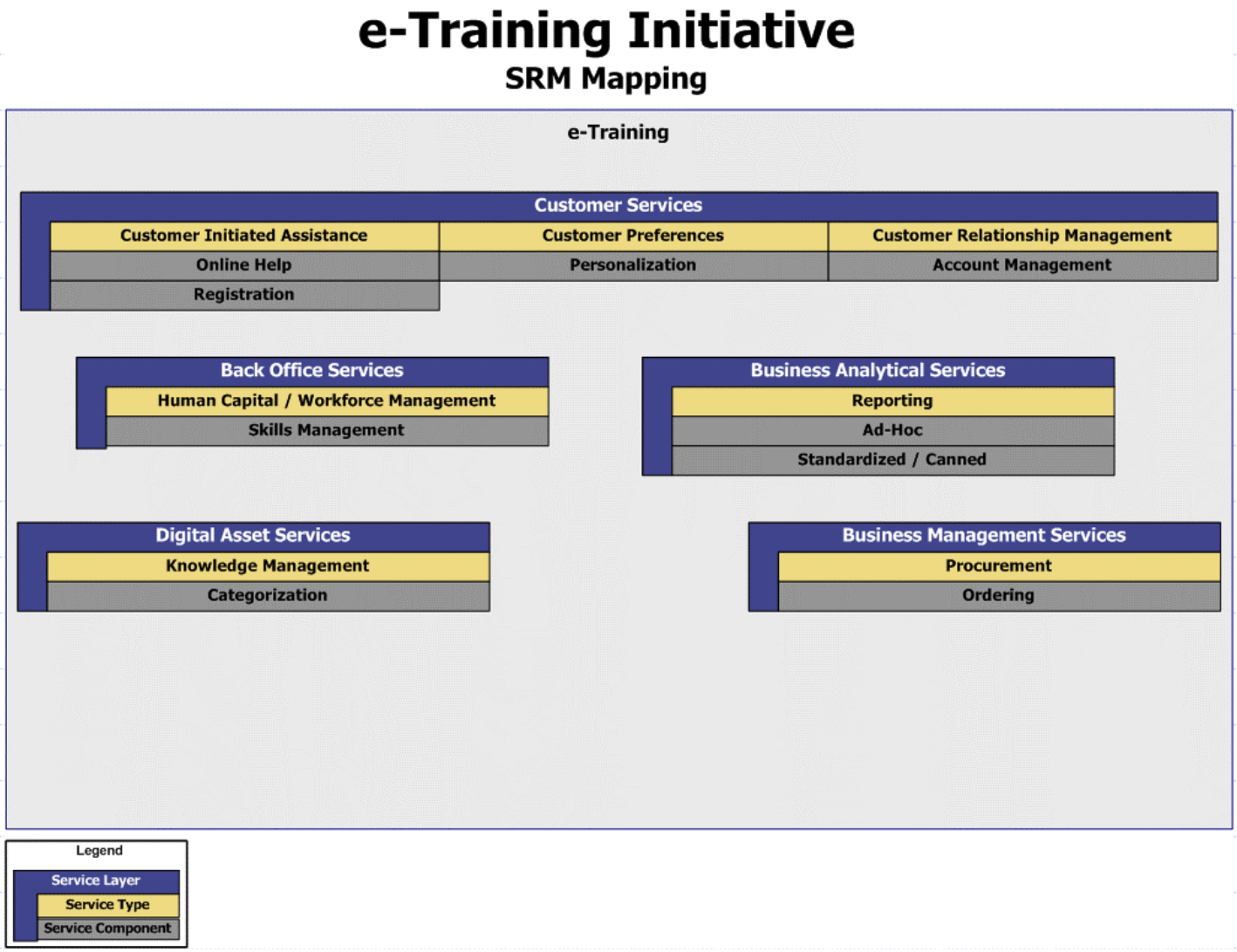
SRM Mapping



SRM Mappings and Alignment



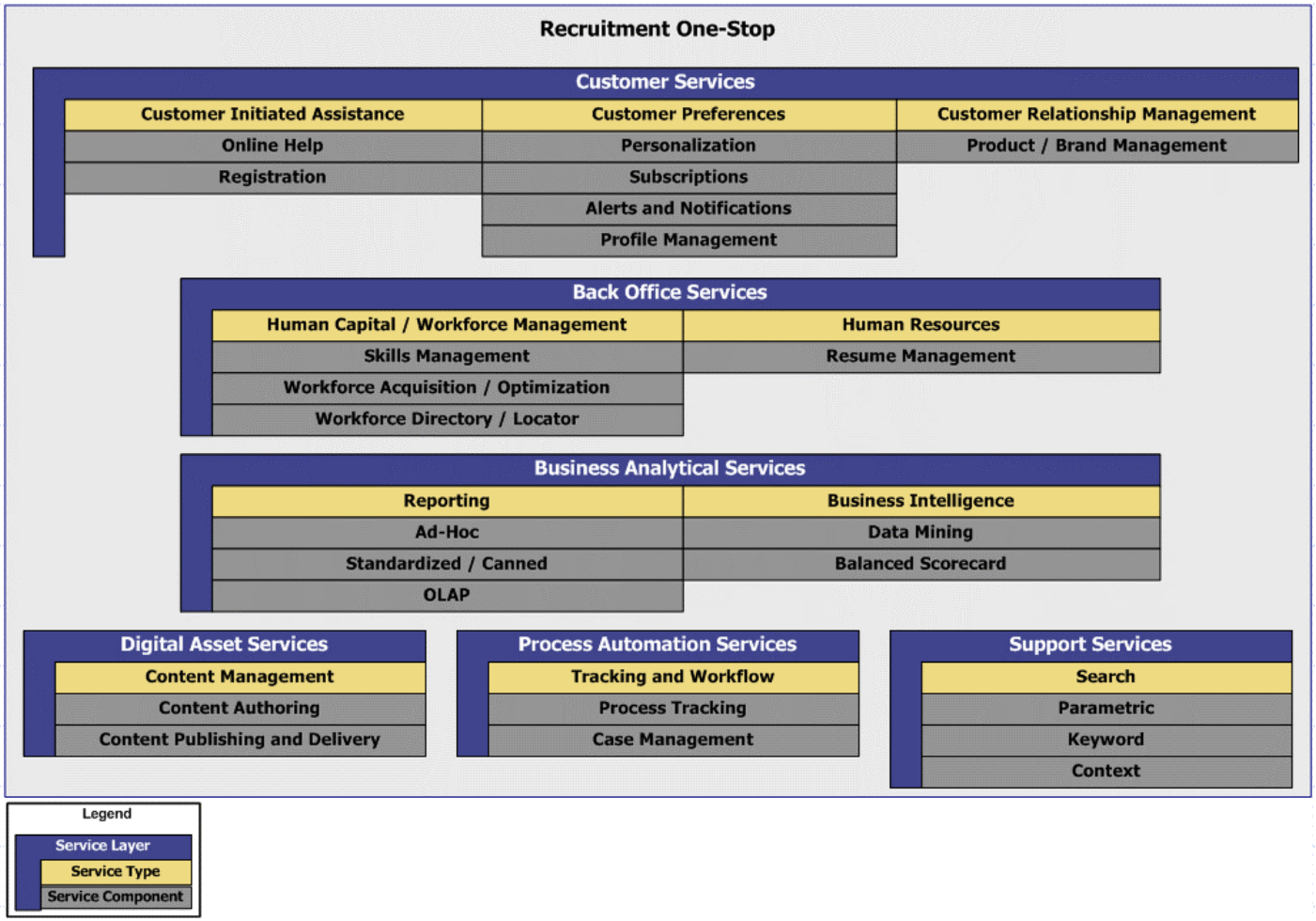
SRM Mappings and Alignment



SRM Mappings and Alignment

Recruitment One-Stop Initiative

SRM Mapping



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SRM Terms and Definitions

Customer Services

Customer Relationship Management	Defines the set of capabilities that are used to plan, schedule and control the activities between the customer and the enterprise both before and after a product or service is offered.
Call Center Management	Define the set of capabilities that handle telephone sales and/or service to the end customer.
Customer Analytics	Define the set of capabilities that allow analysis of an organization's customers.
Sales and Marketing	Define the set of capabilities that facilitate the promotion of a product or service and capture of new business.
Product Management	Define the set of capabilities that facilitate the creation and maintenance of products and services.
Brand Management	Define the set of capabilities that support the application of a trade name to a product or sevice as well as developing an awareness for the name.
Customer / Account Management	Define the set of capabilities that support the retention and delivery of a service or product to an organization's clients.
Contact Management	Define the set of capabilities that keep track of people and the related activities of an organization.
Partner Relationship Mgmt	Define the set of capabilities that are used to plan and control the activities between an organization, it's stakeholders and business partners.
Customer Feedback	Define the set of capabilities that are used to collect, analyze and handle comments and feedback from an organization's customers.
Surveys	Define the set of capabilities that are used to collect useful information from an organization's customers.

SRM Terms and Definitions

Customer Services, Cont'd

Customer Preferences	**Defines the set of capabilities that allow an organization's customers to change a user interface and they way that data is displayed**
Personalization	Define the set of capabilities to change a user interface and how data is displayed.
Subscriptions	Define the set of capabilities that allow a customer to join a forum, listserv, or mailing list.
Alerts and Notifications	Define the set of capabilities that allow a customer to be contacted in relation to a subscription or service of interest.
Profile Management	Define the set of capabilities that allow for the maintenance and modification of a customer's account information related to their profile.
Customer Initiated Assistance	**Defines the set of capabilities that allow customers to proactively seek assistance and service from an organization.**
Online Help	Define the set of capabilities that provide an electronic interface to customer assistance.
Online Tutorials	Define the set of capabilities that provide an electronic interface to educate and assist customers.
Self-Service	Define the set of capabilities that allow an organization's customers to sign up for a particular service at their own initiative.
Reservations / Registration	Define the set of capabilities that allow electronic enrollment and confirmations for services.
Multi-Lingual Support	Define the set of capabilities that allow access to data and information in multiple languages.
Assistance Request	Define the set of capabilities that support the solicitation of support from a customer.

SRM Terms and Definitions

Process Automation Services

Tracking and Workflow	**Defines the set of capabilities for automatic monitoring and routing of documents to the users responsible for working on them to support each step of the business cycle.**
Process Tracking	Define the set of capabilities to allow the monitoring of activities within the business cycle.
Problem / Issue Tracking	Define the set of capabilities that assist in the monitoring of matters under resolution for an organization or it's customers.
Performance Tracking	Define the set of capabilities for measuring the effectiveness of an organization's business strategy, products or services.
Case Management	Define the set of capabilities for managing the life cycle of a particular claim or investigation within an organization.
Routing and Scheduling	**Define the set of capabilities for the automatic directing, assignment, or allocation of time for a particular action or event.**
Correspondence Management	Define the set of capabilities for the management of communication between and organization and it's stakeholders
Business Rule Management	Define the set of capabilities for the management of the processes and regulations that support an organization.

SRM Terms and Definitions

Business Management Services

Management of Process	**Define the set of capabilities that regulate the activities surrounding the business cycle of an organization.**
Change Management	Define the set of capabilities that control the process for updates or modifications to the existing documents, software or business processes of an organization.
Configuration Management	Define the set of capabilities that control the hardware and software environments, as well as documents of an organization.
Requirements Management	Define the set of capabilities for gathering, analyzing and fulfilling the needs and prerequisites of an organization's efforts.
Program / Project Management	Define the set of capabilities for the management and control of a particular effort of an organization.
Governance / Policy Mgmt	Define the set of capabilities intended to influence and determine decisions, actions, and other matters within an organization.
Quality Management	Define the set of capabilities intended to help determine the level that a product or service satisfies certain requirements.
Organizational Management	
Workgroup, Groupware	Defines the set of capabilities that support multiple users working on related tasks.
Network Management	Defines the set of capabilities involved in monitoring and maintaining a communications network in order to diagnose problems, gather statistics and provide general usage.
Investment Management	**Defines the set of capabilities that manage the financial assets and capital of an organization.**
Strategic Planning & Mgmt	Define the set of capabilities that support the determination of long-term goals and the identification of the best approach for achieving those goals.
Portfolio Management	Define the set of capabilities that support the administration of a group of investments held by an organization.
Performance Management	Define the set of capabilities for measuring the effectiveness of an organization's business strategy, products or services.

SRM Terms and Definitions

Business Management Services, Cont'd

Supply Chain Management	**Defines the set of capabilities for planning, scheduling and controlling a supply chain and the sequence of organizations and functions that mine, make or assemble materials and products from manufacturer to wholesaler to retailer to consumer.**
Manufacturing and Production	Defines the set of capabilities for planning, scheduling and controlling the production of materials and products for distribution and sale.
Inventory Management	Defines the set of capabilities for the controlling the products in storage for distribution and sale.
Purchasing	Defines the set of capabilities for the procurement of goods or services.
Sales and Distribution	Defines the set of capabilities that support the pre-sales and post-sales steps of the business cycle.
Scheduling and Delivery	Defines the set of capabilities that support the transferring of goods or services to an end customer.
Logistics Management	Define the set of capabilities that support the procurement, distribution, maintenance, and replacement of material and personnel within the business cycle.
Procurement	**Defines the set of capabilities that support the ordering and purchasing of products and services.**
Sourcing Management	Define the set of capabilities that support the supply of goods or services.
Catalog Management	Define the set of capabilities that support the listing of available products or services that an organization offers.
Ordering / Purchasing	Define the set of capabilities that allow the placement of request for a product.
Order Tracking	Define the set of capabilities that support the identification of where a shipment or delivery is within the business cycle.
Storefront / Shopping Cart	Define the set of capabilities that support the online equivalent of the supermaket cart, where orders and merchandise are placed.

SRM Terms and Definitions

Digital Asset Services

Content Management	**Define the capabilities that manage the storage, maintenance and retrieval of website documents and all related elements.**
Content Authoring	Define the capabilities that allow for the creation of tutorials, CBT courseware, Web sites, CD-ROMs and other interactive programs.
Content Review and Approval	Define the capabilities that allow for the approval of interactive programs.
Tagging and Aggregation	
Content Publishing and Delivery	Define the set of capabilities that allow for the propagation of interactive programs.
Syndication Management	Define the set of capabilities that control and regulate an organization's brand.
Document Management	**Defines the set of capabilities that control the capture and maintenance of an organization's documents and files.**
Document Imaging	Define the set of capabilities that support the scanning of documents.
Document Referencing	Define the set of capabilities that support the redirection to other sources or content.
Document Revisions	Define the set of capabilities that support the versioning and editing of content and documents.
Library / Storage	Define the set of capabilities that support document and data warehousing and archiving.
Document Review and Approval	Define the set of capabilities that support the editing and commendation of documents before releasing them.
Document Conversion	Define the set of capabilities that support the changing of files from one type of format to another.
Indexing	

SRM Terms and Definitions

Digital Asset Services, Cont'd

Knowledge Management	**Defines the set of capabilities that support the identification, gathering and transformation of documents, reports and other sources into meaningful information.**
Information Retrieval	Defines the set of capabilities that allow access to data and information.
Information Mapping / Taxonomy	Defines the set of capabilities that support the creation and maintenance of relationships between data entities, naming standards and categorization.
Information Sharing	Defines the set of capabilities that support the use of documents and data in a multi-user environment.
Categorization	Defines the set of capabilities that allow classification of data and information.
Knowledge Engineering	Define the set of capabilities that support the translation of knowledge from an expert into the knowledge base of an expert system.
Knowledge Capture	Defines the set of capabilities that facilitate collection of data and information.
Knowledge Discovery	Defines the set of capabilities that facilitate the identification of useful information from data.

SRM Terms and Definitions

Business Analytic Services

Analysis and Statistics	**Define the set of capabilities that support the examination of business issues, problems and their solutions.**
Modeling	Define the set of capabilities that support the simulating of conditions or activities by performing a set of equations on a set of data.
Predictive	Define the set of capabilities that support the foretelling of something in advance by the use of data.
Simulation	Define the set of capabilities that support the representation of the interaction between real-world objects.
Mathematical	Define the set of capabilities that support the use of mathematical functions and algorithms for the analysis of data.
Structural, Thermal	Define the set of capabilities that support the use of data flow and data modeling diagrams for applying systematic analysis of data.
Visualization	**Define the set of capabilities that support the conversion of data into graphical or picture form.**
Graphing, Charting	Define the set of capabilities that support the presentation of information in the form of diagrams or tables.
Imagery	Define the set of capabilities that support the creation of film or electronic images from pictures or paper forms.
Multimedia	Define the set of capabilities that support the representation of information in more than one form to include text, audio, graphics, animated graphics and full motion video.
Mapping / Geospacial	Define the set of capabilities that support the use of latitude and longitude coordinates.
CAD	Define the set of capabilities that support the design of products with computers.

SRM Terms and Definitions

Business Analytic Services, Cont'd

Business Intelligence	**Defines the set of capabilities that support information that pertains to the history, current status or future projections of an organization.**
Risk Management	Define the set of capabilities that support the identification and probabilities or chances of hazards as they relate to a task or decision.
Demand Forecasting / Mgmt	Define the set of capabilities that facilitate the prediction of sufficient production to meet an organization's sales of a product or service.
Balanced Scorecard	Defines the set of capabilities that support the listing and analyzing of both positive and negative impacts associated with a decision.
Decision Support and Planning	Defines the set of capabilities that support the analyze information and predict the impact of decisions before they are made.
Data Mining	Define the set of capabilities that support the exploring and analyzing of detailed business transactions to uncover patterns and relationships within the business activity and history.
Reporting	**Define the set of capabilities that support the organization of data into useful information.**
Ad-Hoc	Define the set of capabilities that support the use of dynamic reports on an as needed basis.
Standardized / Canned	Define the set of capabilities that support the use of pre-conceived or pre-written reports.
OLAP	Define the set of capabilities that support the analysis of information that has been summarized into multidimensional views and hierarchies.

SRM Terms and Definitions

Back Office Services

Data Management	**Define the set of capabilities that support the usage, processing and general administration of unstructured information.**
Data Exchange	Define the set of capabilities that support the interchange of information between multiple systems or applications.
Data Mart	Define the set of capabilities that support a subset of a data warehouse for a single department or function within an organization.
Data Warehouse	Define the set of capabilities that support the archiving and storage of large volumes of data.
Meta Data Management	Define the set of capabilities that support the maintenance and administration of data that describes data.
Data Cleansing	Define the set of capabilities that support the removal of incorrect or unnecessary characters and data from a data source.
Extraction and Transformation	Define the set of capabilities that support the manipulation and change of data.
Loading and Archiving	Define the set of capabilities that support the population of a data source with external data.
Records Management	

SRM Terms and Definitions

Back Office Services, Cont'd

Human Resources	**Defines the set of capabilities that support the recruitment and management of personnel.**
Recruiting	Define the set of capabilities that support the identification and hiring of employees for an organization.
Resume Management	Define the set of capabilities that support the maintenance and administration of one's professional or work experience and qualifications.
Career Development	Define the set of capabilities that support the professional growth and advancement of an organization's employees.
Time Reporting	Define the set of capabilities that support the submission, approval and adjustment of an employee's hours.
Benefit Management	Define the set of capabilities that support the enrollment and participation in an organization's compensation and benefits programs.
Retirement Management	Define the set of capabilities that support the payment of benefits to retirees.
Personal Administration	
Education / Training	Defines the set of capabilities that support the active building of employee capacities.

SRM Terms and Definitions

Back Office Services, Cont'd

Financial Management	**Define the set of capabilities that support the accounting practices and procedures that allow for the handling of revenues, funding and expenditures.**
Billing and Accounting	Define the set of capabilities that support the charging, collection and reporting of an organization's accounts.
Credit / Charge	Define the set of capabilities that support the use of credit cards or electronic funds transfers for payment and collection of products or services.
Expense Management	Define the set of capabilities that support the management and reimbursement of costs paid by employees or an organization.
Payroll	Define the set of capabilities that involve the administration and determination of employees compensation.
Payment / Settlement	Define the set of capabilities that support the process of accounts payable.
Debt Collection	Define the set of capabilities that support the process of accounts receivable.
Auditing	Define the set of capabilities that support the examination and verification of records for accuracy.
Activity-Based Management	
Currency Translation	Define the set of capabilities that support the calculations and difference between multiple mediums of exchange.

SRM Terms and Definitions

Back Office Services, Cont'd

Assets/Materials Management	**Define the set of capabilities that support the acquisition, oversight and tracking of an organization's assets.**
Asset Cataloging / Identification	Define the set of capabilities that support the listing and specification of available assets.
Asset Transfer and Allocation	Define the set of capabilities that support the movement and assignment of assets.
Facilities Management	Define the set of capabilities that support the construction, management and maintenance of facilities for an organization.
Integration	**Define the set of capabilities that support the communication between hardware/software applications.**
Legacy Integration	Define the set of capabilities that support the communication between newer generation hardware/software applications and the previous, major generation of hardware/software applications.
Enterprise Application Integration	Define the set of capabilities that support the redesigning of disparate information systems into one system that uses a common set of data structures and rules.
Data Integration	Define the set of capabilities that support the organization of data from separate data sources into a single source using middleware or application integration.

SRM Terms and Definitions

Back Office Services, Cont'd

Human Capital/Workforce Management	
Resource Planning and Allocation	Define the set or capabilities that support the means for assignment of employees and assets to sustain or increase an organization's business.
Skills Management	Define the set of capabilities that support the proficiency of employees in the delivery of an organization's products or services.
Workforce Directory / Locator	Define the set of capabilities that support the listing of employees and their whereabouts.
Team / Org Management	Define the set of capabilities that support the hierarchy structure and identification of employees within the various sub-groups of an organization.
Contingent Workforce Management	Define the set of capabilities that support a continuity B91of operations for an organization's business?????????????
Workforce Acquisition / Optimization	Define the set of capabilities that support the hiring and re-structuring of employees and their roles within an organization.

SRM Terms and Definitions

Common Services

Security Management	**Defines the set of capabilities that support the protection of an organization's hardware/software and related assets.**
Identification	
Access Control	Define the set of capabilities that support the management of permissions for logging onto a computer or network.
Encryption	Define the set of capabilities that support the encoding of data for security purposes.
Intrusion Detection	Define the set of capabilities that support the detection of illegal entrance into a computer system.
Verification	Define the set of capabilities that support the confirmation of authority to enter a computer system, application or network.
Digital Signature	Define the set of capabilities that guarantee the unaltered state of a file.
User Management	Define the set of capabilities that support the administration of computer, application and network accounts within an organization.
Role / Privilege Management	Define the set of capabilities that support the granting of abilities to users or groups of users of a computer, application or network.
Collaboration	
Email	Define the set of capabilities that support the transmission of memos and messages over a network.
Threaded Discussions	Define the set of capabilities that support the running log of remarks and opinions about a given topic or subject.
Document Library	Define the set of capabilities that support the grouping and archiving of files and records on a server.
Shared Calendaring	Define the set of capabilities that allow an entire team as well as individuals to view, add and modify each others schedules, meetings and activities.
Task Management	Define the set of capabilities that support a specific undertaking or function assigned to an employee.

SRM Terms and Definitions

Common Services, Cont'd

Search	**Defines the set of capabilities that support the probing and lookup of specific data from a data source.**
Keyword	Define the set of capabilities that support the lookup of specific data from a data source based upon user input of a word.
Context	Define the set of capabilities that support the lookup of records or documents based upon text contained in any part of the file instead of a pre-defined keyword.
Free Text	Define the set of capabilities that support the lookup of specific data from a data source based upon user-supplied criteria.
Parametric	
Communication	**Defines the set of capabilities that support the transmission of data, messages and information in multiple formats and protocols.**
Real-Time / Chat	Define the set of capabilities that support the conferencing capability between two or more users on a local area network or the internet.
Instant Messaging	Define the set of capabilities that support keyboard conferencing over a Local Area Network or the internet between two or more people.
Audio Conferencing	Define the set of capabilities that support audio communications sessions among people who are geographically dispersed.
Video Conferencing	Define the set of capabilities that support video communications sessions among people who are geographically dispersed.
Event / News Management	Define the set of capabilities that monitor servers, workstations and network devices for routine and non-routine events.
Community Management	Define the set of capabilities that support the administration of online groups that share common interests.

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TRM Terms and Definitions

Service Access and Delivery

Access Channels	Access Channels define the interface between an application and it's users, whether it is a browser, personal digital assistant or other medium.
Web Browser	The program that serves as your front end to the World Wide Web on the Internet. In order to view a site, you type its address (URL) into the browser's location field.
Internet Explorer	Microsoft Internet Explorer (MSIE) is the most widely used World Wide Web browser
Netscape Communicator	Netscape is the second most widely used World Wide Web browser.
Wireless / PDA	Technology that uses transmission via the airwaves (Personal Digital Assistant) A handheld computer that serves as an organizer for personal information. It generally includes at least a name and address database, to-do list and note taker.
Palm Operating System	Palm is the leading Personal Digital Assistant (PDA). Version 5 of Palm OS provides multitasking and other capabilities that will provide an improved platform for E-Gov solutions. http://www.palmos.com/dev/
Blackberry	The leading email enabled wireless device with wide use in several Agencies. http://www.blackberry.com/developers/na/index.shtml
Pocket PC Phone Edition	Microsoft's environment for internet capable cellular phones. http://www.microsoft.com/mobile/pocketpc/phoneedition/default.asp
Pocket PC 2000	Microsoft's environment for PDA level devices. http://www.microsoft.com/mobile/pocketpc/learnmore.asp
Symbian Epoc	A leading environment for web capable cellular phones. http://www.symbian.com/developer/index.html

TRM Terms and Definitions

Service Access and Delivery (Continued)

Access Channels (continued)	**Access Channels define the interface between an application and it's users, whether it is a browser, personal digital assistant or other medium.**
Other Electronic Channels	These represent other various mediums of information exchange and interface between a user and an application.
Kiosk	A kiosk is a small physical structure (often including a computer and a display screen) that displays information for people walking by. Kiosks are common in public buildings. Kiosks are also used at trade shows and professional conferences.
Web Service	Web services (sometimes called *application services*) are services (usually including some combination of programming and data, but possibly including human resources as well) that are made available from a business's web server for Web users or other Web-connected programs.
System To System	System to System involves at least two computers that exchange data or interact with each other independent of human intervention or participation.
Email	E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication.
Delivery Channels	**Delivery channels define the level of access to applications and systems based upon the type of network used to deliver them.**
Internet	The internet is a worldwide system of computer networks in which users at any one computer can, if they have permission, get information from any other computer.
Intranet	An intranet is a private network that is contained within an enterprise. It may consist of many inter-linked local area networks and is used to share company information and resources among employees.
Extranet	An extranet is a private network that uses the Internet protocol and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company.

TRM Terms and Definitions

Service Access and Delivery (Continued)

Delivery Channels (continued)	**Delivery channels define the level of access to applications and systems based upon the type of network used to deliver them.**
Peer to Peer (P2P)	Peer to Peer is a class of applications, that operate outside the DNS system and have significant or total autonomy from central servers, that take advantage of resources available on the Internet.
Virtual Private Network (VPN)	A Private Data Network that makes use of the public telecommunication infrastructure, maintaining privacy through the use of a tunneling protocol and security procedures.
Service Requirements	**Service Requirements define the necessary aspects of an application, system or service to include legislative, performance and hosting.**
Legislative / Compliance	Defines the pre-requisites that an application, system or service must have mandated by congress or governing bodies.
Web Content Accessibility	Refers to hardware and software that helps people who are physically or visually impaired.
Security	Policy that deals with the protection of data against unauthorized access.
Privacy	Policy that deals with the degree to which an individual can determine which personal information is to be shared with whom and for what purpose.
Section 508	Section 508 requires that Federal agencies' electronic and information technology is accessible to people with disabilities, including employees and members of the public.

TRM Terms and Definitions

Service Framework

Service Transport	Service Transport defines the end-to-end management of the communications session to include the access and delivery protocols.
Supporting Network Services	These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.
IMAP – (Internet Message Access Protocol (RFC2060) V4.1)	IMAP4rev1 allows a client to access and manipulate electronic mail messages on a server. IMAP4rev1 permits manipulation of remote message folders, called "mailboxes", in a way that is functionally equivalent to local mailboxes. IMAP4rev1 also provides the capability for an offline client to resynchronize with the server.
MIME (RFC 2045) – (Multipurpose Internet Mail Extensions)	MIME extends the format of Internet mail to allow non-US- American Standard Code for Information Interchange (ASCII) textual messages, non-textual messages, multi-part message bodies, and non-US-ASCII information in message headers. MIME support allows compliant email clients and servers to accurately communicate embedded information to internal and external users.
SMTP (RFC821) – (Simple Mail Transfer Protocol)	SMTP facilitates transfer of electronic-mail messages. It specifies how two systems are to interact, and the messages format used to control the transfer of electronic mail.
T.120 – (International Telecommunications Union (ITU))	T.120 contains a series of communication and application protocols and services that provide support for real-time, multipoint data communications. These multipoint facilities are important building blocks for collaborative applications, including desktop data conferencing, and multi-user applications. http://www.imtc.org/t120body.htm
H323 – (International Telecommunications Union (ITU))	H.323 addresses Video (Audiovisual) communication on Local Area Networks, including Corporate Intranets and packet-switched networks generally. http://www.imtc.org/h323.htm
ESMTP (RFC1869) – (Extended Simple Mail Transfer Protocol)	ESMTP allows new service extensions to SMTP to be defined and registered with Internet Assigned Numbers Authority (IANA)

TRM Terms and Definitions

Service Framework (Continued)

Service Transport (continued)	**Service Transport defines the end-to-end management of the communications session to include the access and delivery protocols.**
Supporting Network Services (continued)	These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.
SNMP V3 – (Simple Network Management Protocol)	SNMP Eliminates several of the security vulnerabilities in earlier version. http://www.ietf.org/rfc/rfc2570.txt?number=2570
LDAP V3 (RFC 1779) – (Lightweight Directory Access Protocol)	Lightweight Directory Access Protocol (LDAP) is a subset of X.500 designed to run directly over the TCP/IP stack. LDAP is, like X.500, both an information model and a protocol for querying and manipulating it. LDAPv3 is an update developed in the IETF (Internet Engineering Task Force), which address the limitations found during deployment of the previous version of LDAP. http://www.opengroup.org/directory/branding/ldap2000/x99di.htm
X.500 – (International Telecommunication Union Telecommunication Standardization Sector (ITU))	Defines how global directories should be structured. X.500 directories are hierarchical with different levels for each category of information, such as country, state, and city.
Service Transport	These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.
TCP/IP – Transport Control Protocol / Internet Protocol	This is the protocol of the Internet and has become the global standard for communications. TCP provides transport functions, which ensures that the total amount of bytes sent is received correctly at the other end. IP accepts packets from TCP, adds its own header and delivers a "datagram" to the data link layer protocol. It may also break the packet into fragments to support the maximum transmission unit (MTU) of the network.
HTTP – Hyper Text Transfer Protocol	The communications protocol used to connect to servers on the World Wide Web. It's primary function is to establish a connection with a web server and transmit HTML pages to the client browser.
HTTPS – Hyper Text Transfer Protocol Secure	The protocol for accessing a secure Web server. Using HTTPS in the URL instead of HTTP directs the message to a secure port number rather than the default Web port number of 80. The session is then managed by a security protocol.

TRM Terms and Definitions

Service Framework (Continued)

Service Transport (continued)	**Service Transport defines the end-to-end management of the communications session to include the access and delivery protocols.**
Service Transport (continued)	These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.
WAP – (Wireless Application Protocol)	The Wireless Application Protocol (WAP) is an open, global specification that empowers users of digital mobile phones, pagers, personal digital assistants and other wireless devices to securely access and interact with Internet/intranet/extranet content, applications, and services. http://www.wapforum.org/
FTP – File Transfer Protocol	A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a Web site on a local machine, they are typically uploaded to the Web server using FTP.

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Security	**Security defines the method of protecting applications, systems and data against unauthorized access.**
Certificates / Digital Signature	Software used by a certification authority (CA) to issue digital certificates and secure access to information.
X. 509 – (International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) Certificate Authentication)	The international standard for the digital certificate authentication that is used for user identification, especially for creation of an electronic document used to prove identity and public key ownership over a communications network.
FIPS 186 – (Digital Signature Standard (DSS) also Draft ANSI X9.30-199x Part 1; and ISO/IEC JTC1/SC27/WG2, Project 1.27.08 Digital Signature with Appendix)	The DSS standard specifies a digital signature algorithm (DSA) appropriate for applications requiring a digital, rather than written, signature. The DSA authenticates the integrity of the signed data and the identity of the signatory. The DSA may also be used to prove that data was actually signed by the generator of the signature.
SSL – (Secure Sockets Layer (SSL))	An open, non-proprietary protocol for securing data communications across computer networks. SSL is sandwiched between the application protocol (such as HTTP, Telnet, FTP, and NNTP) and the connection protocol (such as TCP/IP, UDP). SSL provides server authentication, message integrity, data encryption, and optional client authentication for TCP/IP connections.

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Security (continued)	**Security defines the method of protecting applications, systems and data against unauthorized access.**
Supporting Security Services	These consist of the different protocols and components to be used in addition to certificates and digital signatures
S/MIME – (Secure Multipurpose Internet Mail Extensions)	Provides a consistent way to send and receive secure MIME data. Based on the Internet MIME standard, S/MIME provides cryptographic security services for electronic messaging applications: authentication, message integrity and non-repudiation of origin (using digital signatures) and data confidentiality (using encryption). S/MIME is not restricted to mail; it can be used with any transport mechanism that transports MIME data, such as HTTP. http://www.ietf.org/html.charters/smime-charter.html
TLS – (Transport Layer Security)	Standard for the next generation SSL. Provides communications privacy over the Internet. The protocol allows client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, or message forgery. http://www.ietf.org/html.charters/tls-charter.html
WS-Security – (Web Services Security)	Describes enhancements to SOAP messaging to provide message integrity, message confidentiality, and single message authentication. These mechanisms can be used to accommodate a wide variety of security models and encryption technologies including X.509, Kerberos, and SAML. http://www.oasis-open.org/committees/wss/ http://www-106.ibm.com/developerworks/library/ws-secure/

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Security (continued)	**Security defines the method of protecting applications, systems and data against unauthorized access.**
Supporting Security Services (continued)	These consist of the different protocols and components to be used in addition to certificates and digital signatures
SAML – (Security Assertion Markup Language)	An XML-based framework for exchanging security information expressed in the form of assertions about subjects, where a subject is an entity (either human or computer) that has an identity in some security domain. SAML is expected to play a key role in the Federal-wide E-Authentication initiative, and is supported by both the Liberty Alliance and WS-Security. http://www.oasis-open.org/committees/security/ http://xml.coverpages.org/saml.html
Presentation / Interface	**This defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.**
Static Display	Static Display consists of the software protocols that are used to create a pre-defined, unchanging graphical interface between the user and the software.
HTML – (Hyper Text Markup Language)	The language used to create Web documents and a subset of Standard Generalized Markup Language (SGML) http://www.w3.org/MarkUp/

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Presentation / Interface (continued)	**This defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.**
Dynamic / Server-Side Display	This consists of the software that is used to create graphical user interfaces with the ability to change while the program is running.
JSP – (Java Server Pages)	JSP is part of Sun's J2EE architecture and provide template capabilities for presenting dynamically generated Web content. JSPs are text files written in a combination of standard HTML tags, JSP tags, and Java code. http://java.sun.com/products/jsp/
ASP – (Active Server Pages)	A Web server technology from Microsoft that allows for the creation of dynamic, interactive sessions with the user.
ASP.Net – (Active Server Pages .Net)	ASP.NET is a set of technologies in the Microsoft .NET Framework for building Web applications and XML Web Services. ASP.NET pages execute on the server and generate markup such as HTML, WML or XML that is sent to a desktop or mobile browser. http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000440

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Presentation / Interface (continued)	**This defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.**
Content Rendering	This defines the software and protocols used for transforming data for presentation in a graphical user interface.
DHTML – (Dynamic HTML)	A collective term for a combination of new Hypertext Markup Language (HTML) tags and options, style sheets, and programming that will allow Web pages that are more animated and more responsive to user interaction than previous versions of HTML.
XHTML – (eXtensible HTML (emerging))	The W3C's recommendation for the next generation of HTML leveraging XML http://www.w3.org/TR/2001/REC-xhtml11-20010531/
Cascading Style Sheets (CSS)	A style sheet format for HTML documents endorsed by the World Wide Web Consortium. CSS1 (Version 1.0) provides hundreds of layout settings that can be applied to all the subsequent HTML pages that are downloaded.

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Presentation / Interface (continued)	**This defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.**
Wireless / Mobile / Voice	Consists of the software and protocols used for wireless and voice-enabled presentation devices.
WML – Wireless Markup Language	An XML-based protocol designed for Wireless devices.
XHTMLMP – (XHTML Mobile Profile (emerging))	XHTMLMP is designed for resource-constrained Web clients that do not support the full set of XHTML features, such as mobile phones, PDAs, pagers and set-top boxes. It extends XHTML Basic with modules, elements and attributes to provide a richer authoring language. XHTML replaces the Wireless Markup Language (WML). http://www.wapforum.org/what/technical.htm
VXML – (Voice XML (emerging))	VXML is an XML vocabulary for specifying IVR(Integrated Voice Response) Systems http://www.w3c.org/Voice/ http://www.voicexml.org/

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Business Logic	**Defines the software, protocol or method in which business rules are enforced within applications.**
Platform Independent (J2EE)	Consists of all software languages that are able to execute and run on any type of operating system or platform.
Java/J2SE (EJB)	A software component in Sun's J2EE platform, which provides a pure Java environment for developing and running distributed applications.
C, C++	C – A procedure programming language. C++ - An object-oriented version of C that has been widely used to develop enterprise and commercial applications.
JavaScript	A scripting language that runs within a web browser.
JSR 53 – (Java Servlet)	Java Servlets provide reusable web components that can be incorporated into portals. http://www.jcp.org/aboutJava/communityprocess/final/jsr053/
JSR 168 – (Java Portlet API)	Java Portlet API enables interoperability between Portlets and Portals by defining APIs tha.t address the areas of aggregation, personalization, presentation and security. http://www.jcp.org/jsr/detail/168.jsp
WSRP – (Web Services for Remote Portals (emerging))	WSRP defines an XML and Web services standard that will allow the plug-n-play of visual, user-facing Web services with portals or other intermediary Web applications. http://www.oasis-open.org/commitees/wsrp

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Business Logic (continued)	**Defines the software, protocol or method in which business rules are enforced within applications.**
Platform Dependent (MS)	Consists of the programming languages and methods for developing software on a specific operating system or platform.
Visual Basic	A version of the BASIC programming language from Microsoft specialized for developing Windows applications.
Visual Basic .NET	A version of the BASIC programming language from Microsoft specialized for developing Windows applications that is used within Microsoft's .NET environment.
C# (C-Sharp)	An object-oriented programming language from Microsoft that is based on C++ with elements from Visual Basic and Java.
VB Script	A scripting language from Microsoft. A subset of Visual Basic, VBScript is widely used on the Web for both client processing within a Web page and server-side processing in Active Server Pages (ASPs).
COM / COM+ / DCOM	A component software architecture from Microsoft, which defines a structure for building program routines (objects) that can be called up and executed in a Windows environment.

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Data Interchange	**Data Interchange defines the protocols and methods in which data is transferred and represented in and between software applications.**
Data Interchange	Data Interchange is concerned with the sending of data over a communications network.
XML – (eXtensible Markup Language)	XML has emerged as the standard format for web data, and is beginning to be used as a common data format at all levels of the architecture. Many specialized vocabularies of XML are being developed to support specific Government and Industry functions. http://www.w3.org/XML/
ebXML – (Electronic Business using XML)	A modular suite of specifications that enables enterprises to conduct business over the Internet: exchanging business messages, conducting trading relationships, communicating data in common terms and defining and registering business processes. http://www.ebxml.org/
RDF – (Resource Description Framework (emerging))	RDF provides a lightweight ontology system to support the exchange of knowledge on the Web. It integrates a variety of web-based metadata activities including sitemaps, content ratings, stream channel definitions, search engine data collection (web crawling), digital library collections, and distributed authoring, using XML as interchange syntax. RDF is the foundation for the Semantic Web envisioned by Tim Berners-Lee - an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation. http://www.w3.org/RDF/ http://www.w3.org/2001/sw/
WSUI – (Web Services User Interface (emerging))	WSUI uses a simple schema for describing a WSUI "component" that can be used in a portal to call backend SOAP and XML services. WSUI uses XSLT stylesheets to construct user-facing views to enable users to interact with the services. http://www.wsui.org/

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Data Interchange (continued)	**Data Interchange defines the protocols and methods in which data is transferred and represented in and between software applications.**
Data Transformation	Data Transformation consists of the protocols and languages that change the presentation of data within a graphical user interface or application.
XSLT – (eXtensible Stylesheet Language Transform)	Transforms XML document from one schema into another. Used for data interchange between systems using different XML schema, or mapping XML to different output devices. http://www.w3.org/Style/XSL/
Data Management	**The management of all data/information in an organization. It includes data administration, the standards for defining data and the way in which people perceive and use it.**
Reporting and Analysis	Consist of the tools, languages and protocols used to extract data from a data store and process it into useful information.
XBRL – (eXtensible Business Reporting Language)	Extensible Business Reporting Language (XBRL is an open specification which uses XML-based data tags to describe financial statements for both public and private companies. http://www.xbrl.org/
JOLAP – (Java Online Analytical Processing)	JOLAP is a Java API for the J2EE environment that supports the creation and maintenance of OLAP data and metadata, in a vendor-independent manner. http://www.jcp.org/jsr/detail/69.jsp

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Data Management (continued)	**The management of all data/information in an organization. It includes data administration, the standards for defining data and the way in which people perceive and use it.**
Reporting and Analysis (continued)	Consist of the tools, languages and protocols used to extract data from a data store and process it into useful information.
OLAP	(On-Line Analytical Processing) - Decision support software that allows the user to quickly analyze information that has been summarized into multidimensional views and hierarchies.
XML for Analysis	XML for Analysis uses the Simple Object Access Protocol (SOAP) to let Web browser-based programs access back-end data sources for data analysis. The specification allows companies to build online analytical processing (OLAP) and data mining applications that work over the Web. http://www.microsoft.com/data/xml/XMLAnalysis.htm
Database Connectivity	Defines the protocol or method in which an application connects to a data store or data base.
JDBC – (Java Data Base Connectivity)	JDBC provides access to virtually any tabular data source from the Java programming language. It provides cross-DBMS connectivity to a wide range of SQL databases, and other tabular data sources, such as spreadsheets or flat files. http://java.sun.com/products/jdbc/
ODBC - (Open DataBase Connectivity)	A database programming interface from Microsoft that provides a common language for Windows applications to access databases on a network. ODBC is made up of the function calls programmers write into their applications and the ODBC drivers themselves.

TRM Terms and Definitions

Service Framework (Continued)

Component Architecture (Continued)	**The component architecture consists of the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability. This includes, but is not limited to, modules that are designed to interoperate with each other at runtime. Components can be large or small, written by different programmers using different development environments and may be platform independent. Components can be run in stand-alone machines, on a LAN, intranet or the Internet.**
Data Management (continued)	**The management of all data/information in an organization. It includes data administration, the standards for defining data and the way in which people perceive and use it.**
Database Connectivity (continued)	Defines the protocol or method in which an application connects to a data store or data base.
ADO – (Active Data Objects)	ActiveX Data Objects) A programming interface from Microsoft that is designed as "the" Microsoft standard for data access. First used with Internet Information Server, ADO is a set of COM objects that provides an interface to OLE DB. The three primary objects are Connection, Command and Recordset.
ADO.Net – (Active Data Objects .Net)	ADO.NET is the data-access component of the Microsoft's .NET Framework. It provides an extensive set of classes that facilitate efficient access to data from a large variety of sources, enable sophisticated manipulation and sorting of data http://support.microsoft.com/default.aspx?xmlid=fh%3BEN-US%3Badonet

TRM Terms and Definitions

Service Framework (Continued)

Service Interface / Interoperability	Defines the way data is represented in an application, system or web service.
Data Format	The structure of a file. There are hundreds of formats, and every application has many different variations (database, word processing, graphics, executable program, etc.). Each format defines its own layout of the data. The file format for text is the simplest
XML – (eXtensible Markup Language)	XML has emerged as the standard format for web data, and is beginning to be used as a common data format at all levels of the architecture. Many specialized vocabularies of XML are being developed to support specific Government and Industry functions. http://www.w3.org/XML/
Data Exchange / Delivery	Defines the way in which data is communicated from an application.
SOAP – (Simple Object Access Protocol)	SOAP provides HTTP/XML based remote procedure call capabilities for XML Web Services http://www.w3.org/2000/xp/Group/ http://msdn.microsoft.com/msdnmag/issues/0300/soap/soap.asp
Service Discovery	Defines the method in which applications, systems or web services are registered and discovered.
UDDI – (Universal Description Discovery and Integration)	UDDI provides a searchable registry of XML Web Services and their associated URLs and WSDL pages. http://www.uddi.org/about.html
Service Description / Interface	Defines the method for publishing the way in which web services or applications can be used.
WSDL – (Web Services Description Language)	WSDL is an XML based Interface Description Language for describing XML Web Services and how to use them. http://www.w3.org/TR/wsdl
API / Protocol	(Application Program Interface) A language and message format used by an application program to communicate with the operating system or some other control program such as a database management system (DBMS) or communications protocol. APIs are implemented by writing function calls in the program, which provide the linkage to the required subroutine for execution. Thus, an API implies that some program module is available in the computer to perform the operation or that it must be linked into the existing program to perform the tasks.

TRM Terms and Definitions

Service Platforms

Platforms	A hardware or software architecture. The term originally dealt with only hardware, and it is still used to refer to a CPU model or computer family
Wireless / Mobile	Radio transmission via the airwaves. Various communications techniques are used to provide wireless transmission including infrared line of sight, cellular, microwave, satellite. packet radio and spread spectrum.
J2ME – (Java 2 Platform, Micro Edition)	Sun's Java environment for devices. It promises a relatively portable environment for those using Java for other tiers of the architecture. http://java.sun.com/j2me/docs/
Platform Independent (J2EE)	Defines the programming languages that are able to execute and run on any platform or operating system.
J2EE – (Java 2 Platform Enterprise Edition)	Sun's J2EE and Microsoft's .Net are the two dominant distributed computing architecture frameworks. J2EE provides portability of a single language (Java) over multiple operating systems and hardware platforms. http://java.sun.com/j2ee/download.html#platformspec
Platform Dependent (J2EE)	Defines the programming languages that are able to execute and run on any platform or operating system.
Windows 2000	Also known as "Win2K" and "W2K," it is a major upgrade to Windows NT 4. Launched in February 2000, Windows 2000 comes in one client and three server versions. Windows 2000 looks like Windows 95/98, but adds considerably more features, dialogs and options.
.Net	Microsoft's .Net and Sun's J2EE are the two dominant distributed computing architecture frameworks. .Net supports a wide range of languages but is primarily tied to the Microsoft Windows operating system and Intel hardware. http://www.microsoft.com/net/products/default.asp

TRM Terms and Definitions

Service Platforms

Web Servers	**A computer that provides World Wide Web services on the Internet. It includes the hardware, operating system, Web server software, TCP/IP protocols and the Web site content (Web pages). If the Web server is used internally and not by the public, it may be known as an "intranet server."**
J2EE	Java 2 Platform, Enterprise Edition) A platform from Sun for building distributed enterprise applications. J2EE services are performed in the middle tier between the user's machine and the enterprise's databases and legacy information systems. J2EE comprises a specification, reference implementation and set of testing suites.
Apache	A widely-used public domain, UNIX-based Web server from the Apache Group (www.apache.org). It is based on, and is a plug-in replacement for, NCSA's HTTPd server Version 1.3. The name came from a body of existing code and many "patch files."
Microsoft 2000	Microsoft's latest operating system, which includes the IIS web server.
Internet Information Server	Web server software from Microsoft that runs under Windows NT and Windows 2000. It supports Netscape's SSL security protocol and turns an NT-based PC into a Web site. Microsoft's Web browser, Internet Explorer, is also included.
Microsoft .Net	Microsoft's new integrated software development environment.
Internet Information Server	Web server software from Microsoft that runs under Windows NT and Windows 2000. It supports Netscape's SSL security protocol and turns an NT-based PC into a Web site. Microsoft's Web browser, Internet Explorer, is also included.

TRM Terms and Definitions

Service Platforms

Application Servers (TBD)	**In a three-tier environment, a separate computer (application server) performs the business logic, although some part may still be handled by the user's machine. After the Web exploded in the mid 1990s, application servers became Web based.**
Development Environments (TBD)	**This consists of the hardware, software and supporting services that facilitate the development of software applications and systems.**